

# **EXHIBIT A**

## **PART 1**

STEPHEN NOWACZEWSKI  
February 17, 2022

UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF MICHIGAN

MICHIGAN GEOSEARCH, INC.,

a Michigan corporation,

Plaintiff,

vs.

Case No. 2:20-cv-12600-SJM-APP

Hon. Stephen J. Murphy, III

TC ENERGY, INC.,

Mag. Judge Anthony P. Patti

a Canadian Corporation,

Defendant.

/

The Videotaped Deposition of STEPHEN NOWACZEWSKI,

Taken at 1275 South Huron Street,

Ypsilanti, Michigan,

Commencing at 10:08 a.m.,

Thursday, February 17, 2022,

Before Cheri L. Poplin, CSR-5132, RPR, CRR.

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4 EXAMINATION BY MR. KOCHANOWSKI	6	2 Thursday, February 17, 2022
5		3 10:08 a.m.
6 EXHIBITS	PAGE	4
7		5 VIDEO TECHNICIAN: We are on the record at
8		6 10:08 a.m. on February 17th, 2022. Audio and video
9		7 recording will continue to take place until all
10 EXHIBIT	PAGE	8 parties agree to go off the record. Please note that
11 (Exhibits attached to transcript.)		9 microphones are sensitive and may pick up whispering
12 EXHIBIT 1	23	and private conversations. This is the video recorded
13 EXHIBIT 2	34	11 proceeding of Steve Nowaczewski being taken by counsel
14 EXHIBIT 3	53	12 for plaintiff in the matter of Michigan Geosearch,
15 EXHIBIT 4	63	13 Incorporated, versus TC Energy Corporation filed in
16 EXHIBIT 5	69	14 the United States District Court for the Eastern
17 EXHIBIT 6	80	15 District of Michigan.
18 EXHIBIT 7	84	16 This proceeding is being held at the
19 EXHIBIT 8	91	17 Marriott Ypsilanti located at 1275 South Huron Street
20 EXHIBIT 9	97	18 in Ypsilanti, Michigan.
21 EXHIBIT 10	108	19 My name is John Orr. I am the videographer
22 EXHIBIT 11	116	20 on behalf of US Legal Support located at 28411
23 EXHIBIT 12	126	21 Northwestern Highway, Suite 1100, in Southfield,
24 EXHIBIT 13	138	22 Michigan. I am not related to any party in this
25 EXHIBIT 14	147	23 action nor am I financially interested in the outcome.
		24 The court reporter today is Cheri Poplin also on
		25 behalf of US Legal Support.

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<p style="text-align: right;">Page 6</p> <p>1                   Counsel will please state their appearances 2 for the record, after which the court reporter will 3 enter the statement for -- will swear in the witness.</p> <p>4                   MR. KOCHANOWSKI: Good morning, everyone. 5                   My name is Andrew Kochanowski. I'm here on behalf of 6 the plaintiffs. Joining by Zoom are my co-counsel, 7 Amy Marino and Matthew Prebeg.</p> <p>8                   MR. STOCKMAN: Good morning. I'm Paul 9 Stockman, counsel for the defendant.</p> <p>10                  STEPHEN NOWACZEWSKI, 11 was thereupon called as a witness herein, and after 12 having first been duly sworn to testify to the truth, 13 the whole truth and nothing but the truth, was 14 examined and testified as follows:</p> <p>15                  EXAMINATION</p> <p>16 BY MR. KOCHANOWSKI:</p> <p>17 Q. Good morning, Mr. Nowaczewski. My name is Andrew 18 Kochanowski. I represent the plaintiff in this case.</p> <p>19                  You understand that you are under oath here 20 today?</p> <p>21 A. Yes.</p> <p>22 Q. All right. Have you ever given a deposition before?</p> <p>23 A. Yes.</p> <p>24 Q. How many times?</p> <p>25 A. I don't know the exact number. I would say in the</p>	<p style="text-align: right;">Page 8</p> <p>1 Q. Okay. 2 A. Different issues. 3 Q. What was the one in the United States? 4 A. It was a FERC administrative judicial proceeding with 5 regard to market-based rates for ANR Storage Company, 6 one of the entities of TransCanada at the time. 7 Q. And can you tell the judge and jury what FERC stands 8 for? 9 A. Federal Energy Regulatory Commission. 10 Q. How long did you work for TC Energy and/or its 11 predecessors? 12 A. I joined I think the day after Labor Day in 1981 13 Michigan-Wisconsin Pipe Line Company at the time and 14 through a series of mergers and sales ended towards 15 the end of 2018 under TransCanada USA Services. So 16 that would be 37 years. 17 Q. Okay. And is the -- is it fair to say this job has 18 been either your exclusive or primary job in your 19 career? 20 A. To the point of retirement, yes, it was the exclusive 21 job in my career. 22 Q. Okay. Take us back just a little bit. When -- 23 A. Well, I had worked for the U.S. Army Corps of 24 Engineers right out of college, so that was a 25 professional job out of college.</p>
<p style="text-align: right;">Page 7</p> <p>1                  neighborhood of maybe half a dozen. 2 Q. Okay. 3 A. Give or take. 4 Q. Were any of them in connection with your -- with your 5 former work for the defendant here, TC Energy, or its 6 predecessor? 7 A. Yes. 8 Q. Okay. Were any of them personal -- for personal 9 matters you may have, which I have no interest in at 10 all, or were all your other deposition experiences 11 work-related? 12 A. They were all work-related. 13 Q. Okay. Do you recall when the last time it is that you 14 had a deposition? 15 A. Certainly in 2013. If there was one after that, I 16 don't recall. I did give depositions and appeared in 17 administrative trials in both Canada and the United 18 States in 2013 on behalf of the company. 19 Q. And in general, what kind of proceeding was that? 20 What was the proceeding about? 21 A. Which one? 22 Q. The one in 2013. 23 A. In the United States? 24 Q. Well, were they different in the U.S. and Canada? 25 A. Yes.</p>	<p style="text-align: right;">Page 9</p> <p>1 Q. Sure. 2 A. I worked there for about 16 months before taking the 3 job at the pipeline company, so I wanted to clarify 4 that. 5 Q. Sure. So you joined in '81. When did you -- when did 6 you get out of college? 7 A. May of 1980. 8 Q. What did you get a degree in and where? Where from? 9 A. I have a Bachelor of Science with distinction in 10 geology from the University of Michigan Ann Arbor. 11 Q. So out of U of M you went to the army and then from 12 the army you went to Michigan-Wisconsin Pipe Line 13 Company; correct? 14 A. Well, the U.S. Army Corps of Engineers. I was a 15 civilian working with the U.S. Army Corps of 16 Engineers. 17 Q. Sure. 18 A. Yes. But that sequence is correct. I went 19 immediately from the U.S. Army Corps of Engineers to 20 Michigan-Wisconsin Pipe Line Company with no break. 21 Q. Did you get any advanced degrees while working for 22 let's call it Michigan-Wisconsin Pipe Line for a 23 while? Did you get any advanced degrees post your BS 24 in geology while working for the company? 25 A. No.</p>

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1 Q.	Did you take any courses, any -- obtain any certificates in any discipline in any field while working for the company?	1	yesterday.
2		2 Q.	Okay.
3		3 A.	And that was the first time that I reviewed anything relative to this case.
4 A.	I took many additional courses. I did take some university courses at the University of Michigan which were graduate level courses, just two -- one or two that I recall. One at Eastern Michigan University actually was another one. And then industry courses, I had many industry courses, oil and gas training, training specific to pressure transient analysis, reservoir engineering, reservoir simulation, things of that nature, and I also joined professional societies, the American Association of Petroleum Geologists, of which I'm still a member, and the Society of Petroleum Engineers, of which I am a lifetime member.	5 Q.	Okay. Is there anything in particular you recall reviewing?
16 Q.	Okay. Did you ever give what is known as expert opinion or expert testimony on behalf of TCE or its predecessors?	7 A.	There were some historical documents going all the way back to the say late 1970s, early 1980s, some email transcripts, some internal reports, reports by others or documents produced by others.
19 A.	Yes.	11 Q.	Okay. Did you examine any reports produced by a company called Isotech?
20 Q.	Okay. And what -- what kind of proceeding did you -- did you give that testimony in?	13 A.	There was one gas sample produced by Isotech. It was a -- something that had occurred in the 1990s I think.
22 A.	So the aforementioned ANR Storage rate case, my -- the subject of my testimony was technical in nature in -- so that was the most recent one. I mentioned the case in Canada? We had a case -- a hearing in front of the	15 Q.	Okay. So you were given a report or you were given -- or were you given the actual sample?
25		17 A.	My recollection is that it was a cover letter by a Dennis Coleman with a sample or set of sample analyses from that roughly mid 1990s period. I don't remember the precise date.
		21 Q.	Okay. Any other reports by Isotech or evidence by Isotech that you recall reviewing before appearing here today?
		24 A.	I do not recall seeing any other Isotech reports. I reviewed discussions of getting Isotech samples during
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1	Alberta Energy Regulatory Board that revolved around some issues with the Crossfield Gas Storage Field, which was just north of Alberta. Again, my testimony was as a technical witness with respect to geologic and engineering evidence in the reservoir and its relation to the nature of the case.	1	the mid to late first decade of the 2000s, and then into the decade while I was there, somewhere, you know, between 2010 to 2018, we had some discussions about getting Isotech samples, but I did not see any reports during that time period.
7 Q.	Do you believe that you are offering expert testimony on behalf of TC Energy here in this case?	6 Q.	Fair enough. Take us through just briefly your job history when you started out as a young -- young engineer. What were your assignments? What was your first position? What were your assignments?
9 A.	I believe that's what I've been asked to do.	10 A.	With the pipeline company?
10 Q.	You've been asked to prepare what is known as a Rule 26 report?	11 Q.	With pipeline, yeah.
12 A.	No. I have not been asked to prepare any reports.	12 A.	So I was hired as an entry-level geologist. Again, my
13 Q.	Okay. But you're giving -- you're here as a witness to certain proceedings or certain events that took place during your employment. Do you understand that?	13	degree is in geology, so I was hired as a geologist,
15		14	and my first responsibility, our director at the time
16 A.	As I understand it, yes.	15	was a geologist, so he had an interest in regional
17 Q.	Okay.	16	mapping, to bring the regional maps of the Stray
18	MR. STOCKMAN: Mr. Nowaczewski is a percipient witness rather than a Rule 703 witness.	17	sandstone up-to-date. That was the specific task.
20 BY MR. KOCHANOWSKI:		18	The company, ANR, the ANR system, Michigan-Wisconsin
21 Q.	Prior to coming here today, did you review any documents?	19	Pipe Line Company at the time, had many storage fields
23 A.	Yes.	20	in Michigan that were situated in the Michigan Stray
24 Q.	What kind of documents did you review?	21	sandstone, so his interest was in regional mapping and
25 A.	There were many documents I reviewed with counsel just	22	so I -- this was old school, you know, 1981, so we
		23	reviewed scout tickets, logs, and did mapping by hand,
		24	and that's what I did, and so over the course of that
		25	number of months, the first number of months, I

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<p style="text-align: right;">Page 14</p> <p>1 produced regional maps, proceeded to map the Dundee      2 formation at my director's request, and after about      3 probably a year or so, because I have a good math      4 background, began to express an interest in doing some      5 reservoir engineering and so progressively worked into      6 having some responsibilities to assist reservoir      7 engineers at some of the storage calculations and then      8 somewhere in the early 1980s was actually given      9 reservoir engineering responsibilities for certain of      10 the Michigan-Wisconsin Pipe Line Company reservoirs      11 and so did that for a number of years whilst      12 progressing in grade to staff geologist, senior      13 geologist, eventually to principal geologist in the      14 early 1990s, as I recall, and so my duties included --      15 continued to include geological services, you know,      16 mapping, updating maps, looking at logs, doing log      17 analysis, well site geology, so when we would drill      18 wells did well preparations and the actual onsite      19 geological services, but also reservoir engineering      20 duties, which expanded to include reservoir simulation      21 work, so I was party to and principal of leading some      22 reservoir simulation activities and did that through      23 the late '80s and 1990s.</p> <p style="margin-left: 40px;">At some point I was promoted to manager.      25 That may have been -- I don't recall, you know,</p>	<p style="text-align: right;">Page 16</p> <p>1 Resources system to create its own storage services      2 group, technical reservoir engineering and geology,      3 and so they were -- they were standing up a group,      4 needed a geologist, had a senior geologist, wanted to      5 hire a young entry-level geologist. They hired me.</p> <p>6 Q. I see.</p> <p>7 A. So that -- Michigan-Wisconsin Pipe Line Company was,      8 through a combination of leased reservoirs from      9 Michigan Consolidated Gas Company and owned storage      10 reservoirs which Michigan-Wisconsin Pipe Line Company      11 was the owning entity along with ANR Storage Company,      12 which was a separate corporate entity, those were the      13 entities that operated and maintained storage fields      14 for the American Natural Resources system.</p> <p>15 Q. And at some point was all of that bought up or part of      16 that bought up by an entity known as Coastal?</p> <p>17 A. I think it was about 1986 when Coastal Corporation      18 executed what was called a hostile takeover of      19 American Natural Resources, and so then we became part      20 of the Coastal Corporation corporate fold, but the      21 individual company entity such as ANR Pipe -- well, by      22 then Michigan-Wisconsin Pipe Line Company had been      23 renamed to ANR Pipeline Company. ANR Storage Company      24 remained as an entity with separate operating and      25 separate budgets and everything else. And so the</p>
<p style="text-align: right;">Page 15</p> <p>1 exactly when that was. It might have been somewhere      2 around 1996 or so. There were some internal      3 reorganizations, and by 1998, I think, the operating      4 entities of ANR Storage Company and ANR Pipeline      5 Company had combined, and I was manager over a      6 combined group for the ANR Storage and ANR Pipeline by      7 1998.</p> <p>8 Q. Let me just stop you right there because we're using      9 some terms I'm not hugely familiar with or the Court      10 may not be. What's the relationship between ANR and      11 Wisconsin -- Michigan-Wisconsin Pipe Line Company?</p> <p>12 A. So when I hired in to Michigan-Wisconsin Pipe Line      13 Company, the reason that -- in part that I was hired      14 was that at that time ANR -- ANR Corporation, American      15 Natural Resources, was the corporate entity. They      16 owned Michigan Consolidated Gas Company but were      17 spinning them off so that Michigan Consolidated would      18 become its own entity divorced from the ANR, the      19 American Natural Resources Corporate fold. Michigan      20 Consolidated Gas Company had the reservoir and geology      21 group that serviced all American Natural Resources      22 storage reservoirs, so that divestiture of Michigan      23 Consolidated Gas Company required Michigan-Wisconsin      24 Pipe Line Company, which was the remaining entity,      25 along with ANR Storage Company in the American Natural</p>	<p style="text-align: right;">Page 17</p> <p>1 group that I was with was focused on the ANR Pipeline      2 storage fields, again, some of which were leased from      3 Michigan Consolidated Gas Company and its corporate      4 parent, some of which ANR Pipeline Company owned      5 outright.</p> <p>6 Q. All right. And at some point did Coastal divest      7 itself of that business to an entity now known as      8 TC Energy?</p> <p>9 A. Well, first there was a -- what was called a friendly      10 merger with El Paso Corporation in the 2000 to 2001      11 time frame, and so the Coastal entities became part of      12 the El Paso Corporation. In 2007 TransCanada      13 Corporation, as it was then known, purchased certain      14 assets of the El Paso Corporation, among them being      15 the ANR Pipeline, ANR Storage, Great Lakes Gas      16 Transmission assets, among other things.</p> <p>17 Q. All right. So --</p> <p>18 A. So that's where I ended my career under the      19 TransCanada corporate fold.</p> <p>20 Q. Okay. You were there from 2007 to 2018 when you      21 retired?</p> <p>22 A. Right.</p> <p>23 Q. Okay. After you retired, did you stay on as a      24 consultant?</p> <p>25 A. Not for TransCanada, no.</p>

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<p style="text-align: right;">Page 18</p> <p>1 Q. Okay. Do you consult for any energy companies or 2 pipeline companies or oil exploration companies or 3 anything in the -- in the natural -- natural gas 4 technology field?</p> <p>5 A. So shortly after retiring I was contacted by a company 6 called RCP, Incorporated, out of Houston, Texas, to 7 provide gas storage executive consulting to RCP's 8 clients with respect to compliance related to the 9 PHMSA Gas Storage Safety Rule, and so I have been 10 employed by RCP, Incorporated, since end of March, 11 early April of 2019 and I'm currently employed there 12 and work for various clients.</p> <p>13 Q. Okay.</p> <p>14 A. And I also at about the same time created my own 15 limited liability corporation called Nova Northstar, 16 LLC, and that -- that maintains. I did a little bit 17 of work for a Michigan oil and gas concern in 2019, 18 and then the only other work of substance on Nova 19 Northstar was a research project with Battelle and 20 Sandia. It was a Department of Transportation 21 sponsored research project regarding the applicability 22 of subsurface safety valves and tubing and packer 23 installations in reducing risk in storage, and so that 24 was done under my Nova Northstar, LLC.</p> <p>25 Q. All right. Do you provide any consulting services</p>	<p style="text-align: right;">Page 20</p> <p>1 A. Well, if I understand your question correctly, you're 2 referring to his role with respect to being a 3 consultant for the company.</p> <p>4 Q. That's correct.</p> <p>5 A. And specifically for storage. Early on in the 1980s, 6 early 1980s, he may have done some other work that I 7 wasn't familiar with, but the place that I saw him 8 working was in giving -- he was one of three 9 consultants that I recall that the company used in 10 providing engineer -- independent engineering review 11 of the annual gas inventory assessments.</p> <p>12 Q. Okay. And who were the other two?</p> <p>13 A. Dr. Donald Katz and John Vary also, who had been a 14 former Michigan Consolidated Gas Company employee.</p> <p>15 Q. Okay. Did you ever meet Dr. Katz?</p> <p>16 A. Yes, I did.</p> <p>17 Q. And did you meet John Vary?</p> <p>18 A. Yes.</p> <p>19 Q. Okay. Were the three of them, Katz, Vary, and 20 Elenbaas, active during the 1980s, based on your 21 observation, in providing advice to ANR with respect 22 to the Michigan storage fields and others?</p> <p>23 A. For a limited time in the 1980s they all were 24 involved. My recollection is Mr. Vary elected to 25 retire from that consulting at some point, maybe --</p>
<p style="text-align: right;">Page 19</p> <p>1 through RCP to TC Energy or any of its companies, if 2 you know?</p> <p>3 A. I do not.</p> <p>4 Q. Okay. Are you getting compensated by anyone for 5 appearing here today?</p> <p>6 A. No.</p> <p>7 Q. Let's go back a little bit to the early 1980s. Did 8 you know a consultant to -- is it okay if we call the 9 entity ANR back in those days?</p> <p>10 A. It's -- it is okay with me. ANR was the parent, and 11 ultimately the entities assumed ANR as an acronym that 12 was in their name, so I think that makes it clear.</p> <p>13 Q. Okay. So did you know a consultant to ANR back in the 14 1980s named Jack Elenbaas?</p> <p>15 A. Yes.</p> <p>16 Q. And when did you first meet Mr. Elenbaas?</p> <p>17 A. Very shortly after I began employment at the pipeline 18 company.</p> <p>19 Q. And what was his role at the time?</p> <p>20 A. My recollection is having lunch with him in the 21 cafeteria and being introduced to him because he was 22 still working for Michigan Consolidated Gas but was 23 about to retire.</p> <p>24 Q. Okay. And what -- what did you understand his role to 25 be after he retired?</p>	<p style="text-align: right;">Page 21</p> <p>1 very early on in the early 1980s, so my recollection 2 of Mr. Vary's participation was that he had the least. 3 Dr. Katz pulled back sometime in the mid 1980s. 4 Mr. Elenbaas continued to provide that service 5 throughout the 1980s as I recall.</p> <p>6 Q. Well, in fact, Elenbaas provided that service into the 7 2000s, didn't he?</p> <p>8 A. Somewhere in the early 2000s.</p> <p>9 Q. And -- and is it Dr. Elenbaas or is it Mr. Elenbaas?</p> <p>10 I don't want to shortchange anybody.</p> <p>11 A. It's Mr. Elenbaas.</p> <p>12 Q. Okay. And it's Dr. Katz?</p> <p>13 A. Dr. Katz.</p> <p>14 Q. All right. And Dr. Katz at some point in the early 15 1980s prepared a -- a review of ANR's storage 16 operation, did he not?</p> <p>17 A. Well, you'll have to be more specific. He would have 18 prepared some sort of annual statement.</p> <p>19 Q. Well, let me --</p> <p>20 A. So I'm not sure if you're referring to one in 21 particular.</p> <p>22 Q. Well, I'm referring -- I'll show you in a few minutes 23 parts of it, but ask first if you recall a document 24 prepared, I believe it's dated March 6, 1981, by 25 Dr. Katz.</p>

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1 A.	Well, I wouldn't remember the precise date. There 2 were -- just to be clear, there was kind of a 3 foundational period document that because, again, 4 there was this divestiture of Michigan Consolidated 5 Gas and its assets from the American Natural Resources 6 system. That document circa 1980, 1981 was considered 7 a foundational starting point for the pipeline 8 company, the ANR group, to go forward from.		1 essentially beginning work of -- by ANR at the 2 Muttonville site? 3 MR. STOCKMAN: Objection. Foundation. 4 You may answer.
9 Q.	Right.		5 A. So it's probably worth stipulating that the Federal 6 Power Commission was the predecessor of the Federal 7 Energy Regulatory Commission, so I don't know when 8 that transition occurred, probably late '70s, very 9 early '80s, but . . . So when you see Federal Power 10 Commission and docket numbers, those are historically 11 the same type of proceeding that a company today would 12 make application to the Federal Energy Regulatory 13 Commission, or FERC, as we acronymized it. And so 14 without having recollection of this particular 15 document, which is many, many pages and you've put in 16 front of me, I see that it has a docket number 17 CP74-316. That would be typical of a doc -- the 18 technical aspects of describing the reservoir geology 19 and the engineering that was known at the time would 20 have been part and parcel of a company's required 21 filings to the FPC at the time to obtain approval 22 under public good and necessity for an operating 23 certificate to construct, build, and operate a storage 24 reservoir.
10 A.	That was kind of a point in time in history is the way 11 I would characterize it.		25 BY MR. KOCHANOWSKI:
12 Q.	Right.		
13 A.	Again, I started with the company in September of '81, 14 so the March date you mentioned preceded me, but 15 obviously I saw documents that preceded my time of 16 employment there that -- and that was when the -- what 17 we referred to as the -- the Katz statement at that 18 time was, again, kind of that foundational starting 19 point.		
20 Q.	That's right. And, in fact, that -- that Katz 21 document, that foundational starting point, was cited 22 as -- for its methodology in all the annual storage 23 inventory reviews ever since, ever since the '80s; 24 isn't that true?		
25 A.	Yes. Because the methodology prescribed or outlined		
	Page 23		Page 25
1	there as a good practice in the most basic elements of 2 gas inventory analysis was something we maintained 3 throughout my time there. It wasn't the only method, 4 but it was, again, a foundational method of good 5 practice.		1 Q. All right. Do you have a -- do you have a 2 recollection from your many years at -- at ANR 3 whether, in fact, the Muttonville storage facility 4 began sometime in the mid 1970s as an operational 5 storage facility?
6 Q.	Sure. Now, the -- let me hand you what we've marked 7 as Plaintiff's Exhibit 1. 8 (Marked EXHIBIT 1 for identification)		6 A. My recollection that the docket CP74-316 was approved 7 in the maybe 1975, 1976 period Muttonville went into 8 operation.
9 BY MR. KOCHANOWSKI:			9 Q. Okay. And so at that time it became -- would you 10 describe for the Court and jury what does a storage 11 reservoir do and what did -- what -- and what did it 12 do back in the late '70s and continuing through the 13 '80s, '90s, 2000s, and perhaps today?
10 Q.	Are you familiar -- and this is a document that's 11 dated 1975, so it precedes you -- so it precedes you a 12 bit. I pulled it out because it seemed to me that -- 13 that this is a transcript of a -- of a testimony of 14 Jack Elenbaas in front of the Federal Power Commission 15 relating to essentially the beginning of the -- the 16 work that was done by ANR on the site that we're 17 interested in, the Muttonville Niagaran Reef 18 reservoir. Are you familiar -- have you ever seen 19 this document before?		14 A. Okay. So it's a -- that's a general question.
20 A.	I don't recall seeing it.		15 Q. Yes.
21 Q.	Okay. So let me -- let me ask this. Do you have any 22 reason to dispute, and I'm not trying to trick you in 23 any way, that this is, in fact, a -- a -- a testimony 24 of and a report prepared by Jack Elenbaas before the 25 FPC, Federal Power Commission, that relates to the		16 A. I'll try to answer it as best I understand the nature 17 of your question. What does a storage reservoir do? 18 That is the first part of your multipart question.
			19 Q. Yes.
			20 A. A storage reservoir is designed to contain gas for 21 customers or for a company, you know, for some 22 purpose. Some gas -- most commercial gas storages at 23 the time in the mid 1970s were connected to interstate 24 pipeline systems or to local distribution companies, 25 such as, for example, Michigan Consolidated Gas.

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<p style="text-align: right;">Page 26</p> <p>1 Michigan-Wisconsin Pipe Line Company owned the      2 Muttonville asset, so this would have been what is      3 today an ANR Pipeline Company filing, and that would      4 mean that interstate gas would be injected into the      5 storage field and withdrawn out for customers, so the      6 interstate pipeline company would have storage      7 contracts with storage customers, and because ANR      8 Pipeline Company had other reservoirs, the operation      9 of any particular storage field was managed as part of      10 a group, and so many interstate pipeline companies      11 that had a portfolio of storage fields would operate      12 them in an -- as a complex, you know, unless there was      13 some reason that that individual reservoir was part of      14 a separate corporate entity and had its own customers.      15 So Muttonville was in the pipeline company fold of      16 storage customers.</p> <p>17 What would be done to construct a storage      18 field and meet the services that were designed as part      19 of this filing would include injecting a certain      20 amount of gas if necessary to a level of what's called      21 base gas or cushion gas, which provides a pressure      22 support to the injection withdrawal operation, so that      23 pressure support drives deliverability of the wells      24 cumulatively to the station outflow or the injectivity      25 when receiving gas.</p>	<p style="text-align: right;">Page 28</p> <p>1 profile on withdrawal, and so that is how a storage      2 field is generally designed and constructed and a      3 storage field then basically performs according to      4 what customers want to do.</p> <p>5 Q. Okay.</p> <p>6 A. Some years customers want to take a lot of gas. Other      7 years they don't want to take a lot of gas. So the      8 cycling is not a uniform situation. The cycles may      9 vary considerably.</p> <p>10 Q. Okay. Let me kind of stop you right there. You used      11 the word "profile." Is that the profile of the gas or      12 some other profile you're referring to?</p> <p>13 A. The profile of rate versus inventory. So we're      14 talking about the -- the rate of injection versus the      15 inventory that a customer has in storage and then      16 conversely on withdrawal the rate of withdrawal that      17 they may take on a daily basis versus the -- the      18 amount that they have stored.</p> <p>19 Q. All right. Just for those of us who don't understand      20 this industry very well, the -- the storage      21 facility -- the storage facility like Muttonville      22 stores gas that's been extracted elsewhere; correct?</p> <p>23 A. Yes. It's delivered by interstate pipeline, so it is      24 a mix of multiple sources, and it's not an infinite      25 number but it's a very large number of sources.</p>
<p style="text-align: right;">Page 27</p> <p>1 Other things that would have been done at      2 the time were to assure the integrity of the      3 individual wells that were there, any existing wells      4 that were intended to be used for gas storage      5 operations or for observation, and it would have      6 generally included a review of any plugged wells and      7 whether or not they would need any -- need any      8 rehabilitation to assure that there would be no      9 leakage. And then there would be the inclusion of      10 drilling of additional wells if so were required      11 for -- to make the deliverability and cyclability. So      12 two things. You have daily deliverability, but you      13 also have a working storage volume that needs to be      14 cycled in a certain amount of time per customer      15 contracts, and so the number of wells, the amount of      16 base gas, and then, secondly, all the surface      17 facilities, compression, dehydration, metering, other      18 gas processing if necessary.</p> <p>19 So somewhat classically in gas storage      20 design we look at the combination of base gas,      21 compression, and number of wells and the well      22 deliverability as the components that provide the      23 operational characteristics both on injection and      24 withdrawal, and typically customer contracts would be      25 based on a certain profile on injection and a certain</p>	<p style="text-align: right;">Page 29</p> <p>1 Q. Okay. And that gas could come from Canada, it could      2 come from Texas, it could come from Wisconsin, it      3 could come from other places; correct?</p> <p>4 A. North America is blessed with a great gas      5 infrastructure, many pipeline connections. So yes,      6 that gas can come from anywhere in North America that      7 is connected to the natural gas infrastructure.</p> <p>8 Q. All right. And that gas -- so that gas could have --      9 can come from hundreds or thousands of miles away;      10 correct?</p> <p>11 A. Yes.</p> <p>12 Q. And that's been the practice by ANR and other storage      13 operators since at least the '70s to -- to store gas      14 that's been extracted hundreds or thousands of miles      15 away for when it's needed by energy companies;      16 correct?</p> <p>17 A. That's the general paradigm.</p> <p>18 Q. Okay. And so --</p> <p>19 A. Muttonville is connected specifically to the Great      20 Lakes Gas Transmission line so that, you know, to      21 some -- with some distinctions to the general      22 paradigm, the sources of gas primarily going into      23 Great Lakes Gas Transmission, which of course also are      24 multitudinous, can be narrowed down, but Great Lakes      25 has interconnections with other pipelines, and so it</p>

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<p style="text-align: right;">Page 30</p> <p>1     goes back to the same possibility that there are many 2     sources of gas.</p> <p>3 Q.    Sure. But the gas -- you used a term that I'm not 4     sure we're all familiar with, native gas. Can you 5     tell us what you mean by native gas?</p> <p>6 A.    So I'm not sure I'd used the term "native gas" up to 7     this point, but since you've used it, native gas would 8     be the gas that was in a particular reservoir at the 9     time of its discovery. Another way of couching it 10    would be, you know, the gas that had evolved that God 11    put there over geologic time perhaps. Right.</p> <p>12 Q.    Okay. Okay. And then maybe I mis -- I misheard you.</p> <p>13    Did you use the term "base gas" or "cushion," --</p> <p>14 A.    Yes.</p> <p>15 Q.    -- base gas for cushioning?</p> <p>16 A.    Yes.</p> <p>17 Q.    And what's -- what's that?</p> <p>18 A.    So base gas can be composed of remaining native gas 19    plus some amount of injected gas. Depending upon the 20    design parameters of that storage field, there is a 21    design pressure, and that pressure would equate to a 22    volume of gas that provides a minimum pressure 23    support. Hypothetically, let's just say the operator 24    says I'm not going to operate below 500 pounds 25    absolute in the reservoir, and I know that that</p>	<p style="text-align: right;">Page 32</p> <p>1     attributable to customer contracts.</p> <p>2 Q.    Um-hmm. It's the gas that's put into the storage 3     reservoir?</p> <p>4 A.    That is the cyclable portion on a -- whatever the 5     reservoir does commercially. If it's a single cycle 6     reservoir, in the gas storage world single cycle is 7     considered a one injection, one withdrawal cycle per 8     annum, and that might be over a 12-month period, not 9     the same as, you know, a 12-month calendar period but 10    a 12-month injection withdrawal period.</p> <p>11 Q.    All right. Was the Muttonville storage facility a 12    single cycle facility?</p> <p>13 A.    Generally that's the way I recall it being operated. 14    It had the capabilities to do actually more cycles, 15    and late in my service to the company the market 16    demands often wanted more than seasonal service, 17    shorter terms on injection and withdrawal, which would 18    generally dictate higher daily rates, so a field of 19    Muttonville's caliber was able to perhaps provide that 20    shorter term service. All those contracts on an 21    integrated basis, though, with a company like ANR 22    Pipeline were into the mix, so, again, you weren't -- 23    the company was not structuring contracts particular 24    to Muttonville, but when -- so when I was there and 25    when we looked together with other parties within the</p>
<p style="text-align: right;">Page 31</p> <p>1     500 pounds absolute equates to a certain volume of 2     gas. That is my base gas. Now, because things are 3     never completely stable in a reservoir once you start 4     operating in storage unless you provide for a very, 5     very long period of quiescence, the operator may say 6     that 500 psi absolute at stable conditions is my base 7     pressure. They may functionally operate down to a 8     pressure of say 300 pounds flowing, just to provide 9     withdrawal of gas say on that low end, and that's 10    similar to saying that on the top end there may be a 11    maximum pressure stabilized at which say a Federal 12    Power Commission or Federal Energy Regulatory 13    Commission certificate is stipulating the maximum 14    pressure, but typically in order to actually inject 15    that -- that last bit of gas into the reservoir, the 16    operator must be compressing that gas and pushing it 17    at a higher pressure. So those operational pressure 18    ranges will tend to either go below the base pressure, 19    which is often quoted as a stabilized pressure, and 20    then go above the stabilized maximum pressure, which 21    is, you know, for purposes of looking at the balances 22    of gas in the reservoir and what part is base gas. 23    And the other part of gas, then, that exists in the 24    reservoir above that pressure would be called working 25    gas or customer gas. Most of the working gas is</p>	<p style="text-align: right;">Page 33</p> <p>1     company at what we could market in terms of services, 2     the technical aspects that the group I was leading 3     would do were looking at the aggregated capabilities 4     of these individual components of fields and their 5     characteristics with respect to the flexibility that 6     the company had to have a mix of contracts, some of 7     which would be shorter service term contracts with 8     high deliverability on both injection and withdrawal. 9     Sometimes it was only -- customers wanted only high 10    injection service. Sometimes they wanted only high 11    withdrawal service. So, again, the power of an 12    integrated portfolio of gas storage reservoirs that 13    was something that the pipeline -- ANR Pipeline had 14    allowed you to sell a mix of actual commercial 15    contracts.</p> <p>16 Q.    Okay. Well, let me sort of get into that just a 17    little bit. You seem quite knowledgeable about all 18    this. The company charged third parties -- third 19    parties for essentially storing -- storing their gas 20    for some period of time. Is that a fair statement?</p> <p>21 A.    Yes.</p> <p>22 Q.    Okay. And it charged those companies, those third 23    parties some amount of money for injection services or 24    withdrawal services or was that one unified contract?</p> <p>25 A.    So I'm not the expert on how contracts were</p>

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1	structured. It was never my professional	1	away and the volumes impounded. [And] later, the
2	responsibility to structure contracts. As I	2	group was asked to determine the volume of
3	understand it, contracts typically had a quantity	3	non-recoverable book content gas should the reservoir
4	charge and a demand charge, and so when you look at --	4	be abandoned. These studies are reported herein."
5	to paraphrase what you said, if party A wants to store	5	Do you have a recollection, sir, of -- of
6	a certain amount of gas with ANR Pipeline, they will	6	reading and being familiar with this report, with this
7	pay for some annual volume fee and then some demand	7	document, you know, at some point, whether it's when
8	charge that might be indexed to injection or	8	you started or at some point during the 1980s or at
9	withdrawal or both. Again, I'm not the expert on	9	any point later than that?
10	that.	10 A.	The general answer to your question is yes. I would
11 Q.	Okay.	11	have referred to this report from time to time.
12 A.	But that was generally how storage contracts were	12 Q.	Okay. Did you have a copy of this available to you in
13	structured.	13	the 1980s and the 1990s?
14 Q.	All right. Fair enough.	14 A.	We had a -- we had a -- our department library had a
15	(Marked EXHIBIT 2 for identification)	15	copy of this report.
16 BY MR. KOCHANOWSKI:		16 Q.	Okay. You know, I know we talked a little bit about
17 Q.	I'm going to hand you what I've marked as Exhibit 2.	17	all the sort of corporate ownership movement, but for
18	And it's the first of several exhibits that -- that I	18	you as a -- as a geologist, you know, employee working
19	understand are at least part of the -- what you call	19	your way through the system, did you stay at the same
20	the foundational document that Dr. Katz prepared, and	20	offices?
21	they were produced as separate documents, so	21 A.	No. We moved offices several times.
22	unfortunately I have to kind of go with that. But at	22 Q.	Okay.
23	least this, bearing production numbers TC2700 to 2709,	23 A.	I mean, that includes moves from floor to floor within
24	is something called the Study of Non-Effective Gas in	24	the same building.
25	Twenty American Natural Storage Reservoirs by Dr. --	25 Q.	Sure. Sure.
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1	by Donald L. Katz, Assisted by Engineers and	1 A.	But we also moved locations.
2	Geologists of American Natural including John Vary and	2 Q.	But they were always here in Michigan, were they not?
3	Jack R. Elenbaas.	3 A.	Yes.
4	Do you have a recollection of seeing this	4 Q.	Okay. They were -- for some period of time you were
5	document before?	5	in Troy before you retired?
6 A.	Yes.	6 A.	Yes.
7 Q.	Okay. And is this a -- at least a part of the	7 Q.	Okay. And were you ever downtown Detroit?
8	document that we discussed a little while ago that you	8 A.	Yes.
9	called the sort of foundational document?	9 Q.	Okay. Were there any other office locations that, you
10 A.	Yes. The -- internally the group of engineers and	10	know -- other than those two?
11	geologists, we would generally talk about the Katz	11 A.	Farmington Hills.
12	1980 study. I see this is -- has that date March 6th	12 Q.	Okay. So from -- from time to time, you know, you'd
13	of 1981 that you referred to earlier, which caused me	13	moved, but were your -- was your library, were your
14	some confusion, but the studies when you read that	14	documents, were your files, were they moved with you?
15	paragraph were done in 1980, and so it appears to be	15 A.	Yes.
16	one and the same of what I'm recollecting as the Katz	16 Q.	Okay. So -- so this report was always available to
17	1980 report.	17	you if you chose to consult it; correct?
18 Q.	Okay. And according to this -- this is dated	18 A.	As far as I know.
19	March 6th, 1981. That's why I used that date.	19 Q.	Okay. I mean, I'm trying to make a -- make a -- make
20	According to sort of the cover of this report, "In	20	a point here, which is this wasn't something that was
21	June, 1980, the storage field Inventory Report was	21	tucked away in a file cabinet and forgotten? This was
22	issued giving the non-effective gas for twenty	22	a report that was known to people like you and
23	American Natural Storage reservoirs. In November,	23	consulted as necessary throughout the years; correct?
24	1980, the above group was asked to determine what	24	MR. STOCKMAN: Object to form.
25	portion of the non-effective gas volumes had migrated	25	You may answer.

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<p style="text-align: right;">Page 38</p> <p>1 A. Yeah. We -- yes. We considered it a -- an important 2 document to retain in our department file.</p> <p>3 BY MR. KOCHANOWSKI:</p> <p>4 Q. All right. Now, the terms -- on the cover page the 5 term that was used -- let me read again and kind of 6 focus on it. "In November, 1980, the above group was 7 asked to determine what portion of the non-effective 8 gas volumes had migrated away and the volumes 9 impounded."</p> <p>10 I'm going to -- I'm going to ask you some 11 questions about what that actually means to those of 12 us who aren't in the field, in your field. What's a 13 non-effective gas volume?</p> <p>14 A. So I will answer, and I -- I'm just curious as to 15 whether or not the Katz report had actually defined 16 the terms herein, which would beg why I would be 17 answering, <b>but I will give you my paraphrase of what</b> 18 <b>non-effective gas means.</b> Non-effective means when 19 <b>doing a pressure volume study, typically the storage</b> 20 <b>reservoir will have at least two points, typically two</b> 21 <b>points, at different pressures and inventories,</b> and 22 <b>then, one, the engineer will attempt to calculate the</b> 23 <b>best average pressure for the reservoir, adjust it to</b> 24 <b>bottomhole conditions, apply the supercompressibility,</b> 25 <b>or Z factor, based on knowledge of gas properties, and</b></p>	<p style="text-align: right;">Page 40</p> <p>1 bottomhole pressure of 50 psi, and then the cycle line 2 that you are constructing for that inventory analysis, 3 if it deviated from that point, the non-effective gas 4 would be the difference between that idealized point 5 and the current two points that you're looking at.</p> <p>6 Q. But why are you doing that?</p> <p>7 A. Well, that is the first step in assessing a -- what is 8 called a volumetric reservoir's containment of gas.</p> <p>9 Q. All right. And the term "migration" or the term 10 "migrated away" here, that refers to gas that has left 11 the reservoir in some fashion; correct?</p> <p>12 MR. STOCKMAN: Objection. Foundation.</p> <p>13 A. So migration in the sense that ANR used it, and, 14 again, picking up from Dr. Katz's definition, the idea 15 of migration was that it had left the reservoir and 16 was no longer in pressure contact with the reservoir, 17 and that would have a particular signature most of the 18 time if that really had occurred.</p> <p>19 BY MR. KOCHANOWSKI:</p> <p>20 Q. All right. But I'm just asking in terms of 21 definitionally, <b>ANR used the term "migration" to</b> 22 <b>describe that gas that you said left the reservoir;</b> 23 <b>correct?</b></p> <p>24 MR. STOCKMAN: Objection. Mischaracterizes 25 the witness's testimony.</p>
<p style="text-align: right;">Page 39</p> <p>1 then construct a line between the two points, and that 2 line between the two points is a -- a first indication 3 of the poor volume of the reservoir, and what we mean 4 by that is that the -- <b>in an ideal world, if</b> 5 <b>everything were stable, perfectly stable and no errors</b> 6 <b>of any sort whatsoever, the line between those two</b> 7 <b>points would extrapolate to a zero pressure at zero</b> 8 <b>content, zero gas in the reservoir. There are many</b> 9 <b>reasons why that doesn't occur. The deviation of the</b> 10 <b>line from the 00 ordinate would be called</b> 11 <b>non-effective gas.</b></p> <p>12 Now, there's a -- there's an additional 13 part of that that needs to be explained. Many 14 companies, including ANR, for some reservoirs might 15 stipulate an abandonment pressure. In other words, 16 they -- if -- if the company had only purchased the 17 native gas down to a certain pressure, they weren't 18 interested in the gas volume below a certain pressure. 19 They hadn't purchased it. So the non-effective gas 20 would be calculated from the deviation of the point 21 where that line intersected that abandonment pressure. 22 Let's just say, for example, the abandonment pressure 23 was 50 pounds wellhead converted to bottomhole P over 24 Z. That line between the two shut-in pressure content 25 points would intersect that line at the equivalent</p>	<p style="text-align: right;">Page 41</p> <p>1 A. <b>The gas that moved away from the reservoir and was not</b> 2 <b>in pressure contact with it any longer.</b></p> <p>3 BY MR. KOCHANOWSKI:</p> <p>4 Q. All right. So it had -- and we're talking about of 5 course things that occurred thousands of feet under 6 the surface? That's -- that's the phenomenon you're 7 describing?</p> <p>8 A. At the reservoir.</p> <p>9 Q. Right. You're not describing a leak aboveground?</p> <p>10 A. Right.</p> <p>11 Q. Okay. So when we use the term or when Dr. Katz uses 12 the term "migrated gas" in this report, he's talking 13 about -- about gas that has left, as you say, the 14 pressure communication with the reservoir from which 15 it came; right?</p> <p>16 MR. STOCKMAN: Objection. Foundation.</p> <p>17 A. <b>As I understand your question, and as I understand the</b> 18 <b>term "migration," if the gas truly had migrated, then</b> 19 <b>it was no longer in pressure communication with the</b> 20 <b>reservoir.</b></p> <p>21 BY MR. KOCHANOWSKI:</p> <p>22 Q. Okay. And if you take a look at Dr. Katz's and Vary's 23 and Elenbaas's report on Page iii, I think the 24 first -- the first page after the summary of 25 non-effective gas section, he says, "The estimate of</p>

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<p style="text-align: right;">Page 42</p> <p>1     migrated gas for the twenty storage fields total 16.6      2     BCF . . ."</p> <p>3                  Do you see that?</p> <p>4 A. Yes.</p> <p>5 Q. All right. And BCF stands for --</p> <p>6                  MR. STOCKMAN: Counsel, I think 16.32,      7                  wasn't it?</p> <p>8                  MR. KOCHANOWSKI: Well, it says 16.6 in the      9                  first line.</p> <p>10                 MR. STOCKMAN: Oh, first line. Okay.</p> <p>11                 MR. KOCHANOWSKI: Yeah.</p> <p>12 BY MR. KOCHANOWSKI:</p> <p>13 Q. 16.6 BCF. BCF stands for billion -- billion cubic      14 feet; correct?</p> <p>15 A. Yes.</p> <p>16 Q. All right. And he continues. ". . . of which 10.7      17 billion cubic feet relates to Michigan Wisconsin's      18 fifteen operated fields and 5.9 BCF relates to      19 Michigan Consolidated's five fields." Right?</p> <p>20 A. That is what it says in the first line.</p> <p>21 Q. Okay. And then he gives the estimates for      22 non-recoverable book content gas for the 20 fields,      23 totalling, as my colleague says, 16.32 BCF. Do you      24 see that?</p> <p>25 A. I see that.</p>	<p style="text-align: right;">Page 44</p> <p>1 Q. And you're familiar with all those fields; correct?      2 A. Yes.</p> <p>3 Q. And then it lists Michigan Wisconsin owned and      4 operated fields starting with -- now, I never knew how      5 to really pronounce this. Capac or Capac?</p> <p>6 A. Capac.</p> <p>7 Q. Capac. All right. And ending with Winfield. Do you      8 see those?</p> <p>9 A. Yes.</p> <p>10 Q. And then it's got operated fields below starting with      11 Belle River mills and ending with West Columbus;      12 right?</p> <p>13 A. Michigan Consolidated fields.</p> <p>14 Q. Right.</p> <p>15 A. Yes.</p> <p>16 Q. So these are -- so these fields, these 21 different      17 fields, are all in one general area here in Michigan;      18 correct?</p> <p>19 A. They're all in Michigan.</p> <p>20 Q. Okay. Okay. So Muttonville, the thing that brings us      21 here, is in that Michigan Wisconsin owned and operated      22 fields category in the middle; right?</p> <p>23 A. Yes.</p> <p>24 Q. Okay. And so here Dr. Katz and Mr. Elenbaas and      25 Mr. Vary make some calculations as to -- as to how</p>
<p style="text-align: right;">Page 43</p> <p>1 Q. Okay. Is that -- is the -- can we understand that to      2 mean, in very general terms of course, that -- that at      3 least in this instance non-recoverable book content      4 gas includes all of the migrated gas?</p> <p>5                  MR. STOCKMAN: Objection. Foundation.</p> <p>6 A. I would want to read the entire document to -- to say      7 that that is exactly true.</p> <p>8 BY MR. KOCHANOWSKI:</p> <p>9 Q. Okay.</p> <p>10 A. It could be presumed to be true, but until I actually      11 read the entire document, I can't say that.</p> <p>12 Q. Fair enough. Let me ask you to turn to the page      13 that's marked with the number TC2705. And it's I      14 think called Table B. It's called a Composite Summary      15 of Inventory Status of the Michigan Wisconsin and      16 Michigan Consolidated Gas Storage Fields. Do you see      17 that?</p> <p>18 A. Yes.</p> <p>19 Q. Okay. And in -- in -- so on the left-hand side, so      20 the Court and jury can under -- can follow along with      21 us, because I'm going to put this on a screen, the --      22 it lists a bunch of Michigan Wisconsin leased and      23 operated fields, nine of them, starting with Austin      24 and ending with Reed City; is that correct?</p> <p>25 A. Yes.</p>	<p style="text-align: right;">Page 45</p> <p>1     much non-effective gas there is as of 1980 in      2     Columns 1 and 2; correct?</p> <p>3 A. Yes.</p> <p>4 Q. And in Column 3 they give an estimate of gas that's      5 migrated. Do you see that?</p> <p>6 A. Yes.</p> <p>7 Q. Now, were you familiar with -- with these calculations      8 and these estimates and -- at the time that you worked      9 at ANR in the 1980s and 1990s?</p> <p>10 A. Well, I'd previously stated that I'd seen this report,      11 so yes.</p> <p>12 Q. Okay. In fact, these numbers continued to be used      13 with some modifications and additions for the next,      14 well, for you 38 years; isn't that right?</p> <p>15 A. I think you correctly stated that many of these or      16 some of these were modified over the course of that      17 time as new information became available.</p> <p>18 Q. Sure. In 1980 the -- the report, Dr. Katz's report,      19 estimated that four billion cubic feet of gas had      20 migrated from the Austin field; isn't that right?</p> <p>21 A. That's what the number says here in the table.</p> <p>22 Q. And it also lists five other fields, including Reed      23 City, Orient, Lored, Lincoln, and Freeman, as losing      24 anywhere from half a billion cubic feet to two and a      25 half billion cubic feet of gas as of 1980. Do you see</p>

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<p style="text-align: right;">Page 46</p> <p>1       that?</p> <p>2 A. Yes.</p> <p>3 Q. Did you ever, you or anyone that you worked with at 4       ANR over all these years, ever question whether this 5       estimate was correct?</p> <p>6 A. Yes. For some of the fields.</p> <p>7 Q. Okay. So some of it -- some of it -- did the numbers 8       go up or down or were they adjusted in any meaningful 9       way or what can you recall from that -- of that?</p> <p>10     Excuse me.</p> <p>11 A. I recall a couple of instances where the numbers went 12     down. Austin, for example. Coldwater was 13     subsequently abandoned from gas storage service in 14     1998 and as it was produced. I don't know if the 15     adjustment was ever made, but it appeared that -- it 16     appeared that that two BCF came back, so to speak. So 17     there were -- there was additional knowledge obtained 18     over additional years of operating and superior 19     techniques of data gathering and analysis that changed 20     some of these numbers.</p> <p>21 Q. Okay. But in general terms, the idea that gas can 22     migrate from a storage reservoir some thousands of 23     feet underground, that was not a new idea, was it?</p> <p>24 A. The idea that gas can migrate outside of a reservoir 25     is not a new idea.</p>	<p style="text-align: right;">Page 48</p> <p>1       course of my career, including yet today, we can speak 2       of migration within a reservoir, but that's -- 3       specifically with respect to this Katz report, the 4       term "migrated" and making deterministic numbers in a 5       table and having recommendations flow therefrom means 6       migrated away from the reservoir and now -- and no 7       longer in pressure communication with the reservoir, 8       so that is a particular use of the word "migrated."</p> <p>9 Q. Yes. Yes. My question is this. Maybe I wasn't clear 10      enough. These fields that are described in this 11      report, including Muttonville, had at some point in 12      the past been -- been considered depleted reservoirs; 13      right? They were not good for extracting new gas?</p> <p>14 A. They were converted to storage, yes.</p> <p>15 Q. Okay. So --</p> <p>16 A. And they were all depleted reservoirs.</p> <p>17 Q. Okay. And so --</p> <p>18 A. Depleted being a term that also is -- has a various 19     definition.</p> <p>20 Q. All right. But they were -- they were depleted. They 21     were no longer economically viable as extraction 22     sites, and the pressure in them had stabilized to 23     some -- to some level and that was it; correct?</p> <p>24 A. No. I'm not going to agree to that because you -- you 25     listed a number of conditions which all were not true</p>
<p style="text-align: right;">Page 47</p> <p>1 Q. In fact, Dr. Katz's report probably speaks -- speaks 2     of this as this idea came around back in the 1950s, 3     didn't it?</p> <p>4                    MR. STOCKMAN: Objection. Foundation.</p> <p>5 A. I don't -- you're saying -- I don't know where that 6     came from, but in general oil and gas reservoirs, I 7     mean, they're -- pressure -- pressure can drive 8     movement of fluids.</p> <p>9 BY MR. KOCHANOWSKI:</p> <p>10 Q. Okay.</p> <p>11 A. Those are physical principles, let alone oil and gas.</p> <p>12 Q. Sure. So let me ask -- let me ask this. Is the term 13     "migration" as it's used here used to describe the 14     idea that once pressurized operation begins at one of 15     these fields, that pressure causes some of the gas to 16     essentially leak out underground?</p> <p>17 A. Well, I think you're asking me to redefine the term 18     "migrated," and I've already defined that, haven't I?</p> <p>19 Q. Well, I'm not sure because we're -- we're -- we're 20     talking about migration from -- not from a -- sort of 21     a still abandoned reservoir concept but the concept 22     of -- of a reservoir in which gas is forced down into 23     it under pressure, aren't we?</p> <p>24 A. So pressure drives fluid movement. Again, those are 25     physical principles. And I will say that over the</p>	<p style="text-align: right;">Page 49</p> <p>1       of all those reservoirs.</p> <p>2 Q. All right.</p> <p>3 A. So, I mean, not to be difficult, but the -- you know, 4       so pressure being stabilized, not necessarily true at 5       the point of conversion. This goes back to the 6       particulars of each reservoir and how it was taken 7       over and under what conditions. Some reservoirs were 8       taken over where they could still economically 9       produce, but the producers were paid for some assumed 10      recoverable gas yet in the reservoir because there was 11      a need for the storage service and the Certificate of 12      Public Good and Necessity was granted, so it was a 13      condemnation effectively, but the producers were given 14      just compensation. So, again, when you listed your 15      question with a number of conditions that -- I can't 16      say that those were universally true for every 17      reservoir.</p> <p>18 Q. Okay. Let me try it this way. Just so I understand, 19      when we look at numbers like 4 or .5 or .7 or 20      2.5 billion cubic feet, is it fair to say that -- that 21      what Dr. Katz and -- and -- and the other two 22      gentlemen who participated in this report did was 23      estimate how many billion feet of gas that had been in 24      the reservoir at some point had left the reservoir 25      underground?</p>

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<p style="text-align: right;">Page 50</p> <p>1 A. That was their definition and that is what they are 2 estimating.</p> <p>3 Q. Okay. And for Muttonville in 1980, that number of 4 migration -- estimated gas migrated is zero; correct?</p> <p>5 A. That's what's in the table.</p> <p>6 Q. And so about half or so, I didn't really count, of 7 these 21 fields, the -- Dr. Katz, et cetera, didn't 8 believe that any gas had migrated from that field; 9 right?</p> <p>10 A. One can assume so from the numbers in the table.</p> <p>11 Q. Okay. And the Muttonville reservoir back in 1980 12 according to Dr. Katz had a billion cubic feet of 13 non-effective gas. That's in Column 1. Correct?</p> <p>14 A. Yes.</p> <p>15 Q. And that number wasn't changed in June of 1980 in 16 Column 2. And then Column 4 says "Impounded Gas in 17 Normal Cycle." Again, that's one billion cubic feet; 18 correct?</p> <p>19 A. Yes.</p> <p>20 Q. All right. And so is that -- is that also -- 21 "Impounded Gas in Normal Cycle," is that also the 22 concept of that gas that's at a different pressure 23 than the working gas in the field -- in the storage 24 field?</p> <p>25 MR. STOCKMAN: Object to form.</p>	<p style="text-align: right;">Page 52</p> <p>1 is the company-owned base gas plus the working gas.</p> <p>2 Q. Okay. So the indicated percent loss in Column 9 for 3 all of these fields lists -- goes anywhere from zero 4 for I think one of these -- or one or two of these up 5 to 20 percent with looks like averages around -- the 6 average total is seven percent indicated percent loss 7 across all these fields; is that correct? Is that a 8 good way to read this report?</p> <p>9 MR. STOCKMAN: Object to form.</p> <p>10 A. Well, they -- it appears that this table shows the 11 percent loss formula, and it -- it's a little 12 confusing I'll say. If I take .1 in Column 7, I'm not 13 sure that's eight percent. Anyway . . . Presumably 14 the numbers in the table could be derived by executing 15 the formulas they've put in there.</p> <p>16 BY MR. KOCHANOWSKI:</p> <p>17 Q. Okay. Now, as part of --</p> <p>18 MR. STOCKMAN: Counsel, are you moving to 19 another exhibit?</p> <p>20 MR. KOCHANOWSKI: I am gonna.</p> <p>21 MR. STOCKMAN: Is this a good time to take 22 five?</p> <p>23 MR. KOCHANOWSKI: You bet.</p> <p>24 VIDEO TECHNICIAN: We are going off the 25 record. The time is 11:23 a.m.</p>
<p style="text-align: right;">Page 51</p> <p>1 A. I wouldn't answer it the way you posed it. I would 2 say impounded gas means that it's in the reservoir but 3 for various reasons might not be in immediate pressure 4 connection during the time period studied for that 5 inventory analysis.</p> <p>6 BY MR. KOCHANOWSKI:</p> <p>7 Q. Okay. So at least as of 1980, let me turn to the -- 8 to the column on the right, the "Maximum Book Content" 9 as of November 9, 1980, for Muttonville was 12.8. 10 Again, that's billion cubic feet; correct?</p> <p>11 A. Yes.</p> <p>12 Q. So that means that you had about 12.8 billion working 13 gas and this non-effective gas in that reservoir, at 14 least the capacity to place 12.8 billion cubic feet of 15 gas in that reservoir; correct?</p> <p>16 A. No. That's not what book content means. Book 17 content -- I mean, not the way you stated it, sir.</p> <p>18 Q. Okay. So tell me -- tell me what it means.</p> <p>19 A. Book gas would be working gas plus base gas that the 20 company owned. Total content in a reservoir might be 21 inclusive of any unpurchased mostly native gas in the 22 reservoir. That was typically what would have been 23 unpurchased.</p> <p>24 Q. Okay.</p> <p>25 A. So, I mean, in Muttonville's case, that book content</p>	<p style="text-align: right;">Page 53</p> <p>1 (Recess taken at 11:23 a.m.) 2 (Back on the record at 11:32 a.m.)</p> <p>3 VIDEO TECHNICIAN: We are back on the 4 record. The time is 11:32 a.m.</p> <p>5 BY MR. KOCHANOWSKI:</p> <p>6 Q. Okay. Sir, do you understand you're back under oath 7 and we're going to continue with the questioning?</p> <p>8 A. Yes.</p> <p>9 Q. Thanks.</p> <p>10 (Marked EXHIBIT 3 for identification)</p> <p>11 BY MR. KOCHANOWSKI:</p> <p>12 Q. I've handed you what we've marked as Plaintiff's 13 Exhibit 3. It bears production numbers TC4786 to 14 4792.</p> <p>15 MR. STOCKMAN: Counsel, before we do, can 16 we stipulate that the gray box covering text on page 17 TC4788 is not part of the original?</p> <p>18 MR. KOCHANOWSKI: I believe you're correct.</p> <p>19 I believe you're correct.</p> <p>20 BY MR. KOCHANOWSKI:</p> <p>21 Q. This document bears a date January 2, 1980, and it 22 appears to be from Donald Katz to a gentleman named 23 O.B. Weideman at Mich Consolidated Gas Company. Did 24 you know Mr. Weideman?</p> <p>25 A. Yes.</p>

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<p style="text-align: right;">Page 54</p> <p>1 Q. Who was he?</p> <p>2 A. Well, he was a manager or director, probably a 3 director at the time at Michigan Consolidated Gas 4 Company.</p> <p>5 Q. Okay. Was he -- was he one of the managers in charge 6 of the gas storage reservoirs and at least in part the 7 Muttonville reservoir that we're here about today?</p> <p>8 MR. STOCKMAN: Object to foundation.</p> <p>9 BY MR. KOCHANOWSKI:</p> <p>10 Q. If you know.</p> <p>11 A. Well, I -- I never worked for Mr. Weideman, so I 12 presume by the fact that Mr. Katz, Dr. Katz is 13 addressing this to Weideman that Weideman had some 14 sort of responsibility in his chain of command for 15 storage, yes.</p> <p>16 Q. Okay. But fair to say Mr. Weideman was -- was -- was 17 management at Mich Consolidated; right?</p> <p>18 A. Yeah. That's how I understood it.</p> <p>19 Q. Okay. Now, have you -- had you -- have you ever seen 20 this document before, if you can recall?</p> <p>21 A. I don't recall specifically.</p> <p>22 Q. Okay. Well, let's take a -- take a quick look. Now, 23 this is dated about a year, year and two months before 24 that report that we at least partially looked at in 25 Exhibit 2; correct?</p>	<p style="text-align: right;">Page 56</p> <p>1 that had some production from it.</p> <p>2 Q. Okay. And back in 1980 do you know who was the 3 producer at that well?</p> <p>4 A. I think it was Reef Petroleum as I recall.</p> <p>5 Q. Okay. And, now, what brings us here today in this 6 lawsuit is the fact that my client is the producer or 7 has been the producer or the owner or the lessor of 8 what is called Pilat 1-24; correct?</p> <p>9 A. I don't independently know that. You say it is so.</p> <p>10 Q. Okay. Well, did there come a point in time when you 11 understood that MGI and Mr. Fodor, who owns MGI, made 12 certain claims against ANR regarding the encroachment 13 of gas from Muttonville on Pilat 1-24?</p> <p>14 A. Well, that's a complex question. I mean, you've got 15 it loaded with a few terms. You used the term 16 "encroachment," which I'd like you to define for me 17 before I answer. And also you mentioned something 18 about making claims, which, again, is kind of a big 19 bucket. I can say that I knew that Michigan Geosearch 20 acquired the well at some point in time.</p> <p>21 Q. Okay. Well, let's kind of maybe cut to the chase. At 22 some point in the 1990s you learned that Michigan 23 Geosearch through Mr. Fodor asked ANR whether 24 Muttonville gas had migrated to his well; isn't that 25 right?</p>
<p style="text-align: right;">Page 55</p> <p>1 A. January 2 of 1980 to March 6th of 1981. Correct.</p> <p>2 Q. Yeah. And Dr. Katz in this -- in this letter to 3 Mr. Weideman talks about -- talks about a number of 4 reservoirs operated by ANR; right?</p> <p>5 A. It appears so.</p> <p>6 Q. Okay. And he talks about the Muttonville reservoir, 7 does he not?</p> <p>8 A. I see on the first page itemized point Number 3 9 discusses Muttonville.</p> <p>10 Q. Okay.</p> <p>11 MR. STOCKMAN: Could I have a continuing 12 foundation objection given that this is a document 13 that was written before the witness's employment began 14 and he testifies that he doesn't recall seeing it?</p> <p>15 MR. KOCHANOWSKI: Sure.</p> <p>16 BY MR. KOCHANOWSKI:</p> <p>17 Q. Now, here we see the term in that -- in that first 18 page, Number 3, that -- called Pilat 1-24 well. Do 19 you see that?</p> <p>20 A. Under bullet item Number 3?</p> <p>21 Q. Yeah.</p> <p>22 A. Yes.</p> <p>23 Q. And can you tell the jury what you understood to be 24 the Pilat 1-24? What was that, sir?</p> <p>25 A. So this was a well to the southeast of Muttonville</p>	<p style="text-align: right;">Page 57</p> <p>1 A. Again, you're -- you're putting words in the statement 2 that I can't attest to. I will say that I was aware 3 that Mr. Fodor wanted to meet with us to discuss an 4 overall issue with respect to the Pilat well.</p> <p>5 Q. Okay. Well, what issue did he raise back in the 1990s 6 that you can recall with respect to the well?</p> <p>7 A. There was a concern that the pressure building up at 8 the Pilat well might be indicative of something 9 related to the Muttonville storage reservoir.</p> <p>10 Q. So he was saying or asking you whether or not ANR 11 thought there was migration of gas from Muttonville --</p> <p>12 MR. STOCKMAN: Objection.</p> <p>13 BY MR. KOCHANOWSKI:</p> <p>14 Q. -- to his well; isn't that right?</p> <p>15 MR. STOCKMAN: Objection. Foundation.</p> <p>16 A. Well, again, I want to be careful with respect to the 17 historicity of documents saying that those specific 18 terms were used. I think the implication was that the 19 pressure rise at the Pilat could be related to some 20 activity at Muttonville.</p> <p>21 BY MR. KOCHANOWSKI:</p> <p>22 Q. Well, I'm not sure why we're not agreeing here. He 23 was saying that gas from Muttonville had made its way 24 underground into his well, thereby raising the 25 pressure at the well; isn't that right?</p>

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1 A. He may have been saying that.	1 Pilot 1-24 well is in communication with the
2 Q. Okay. I'm just defining what -- what -- what your	2 Muttonville gas reservoir."
3 knowledge was of the claim that he was making, the	3 Do you see that phrase?
4 question he was raising. It was a question of whether	4 A. Yes.
5 Muttonville gas had made its way to his well southeast	5 Q. Okay. And -- and the term "in communication" with the
6 of the reservoir; right?	6 Muttonville gas reservoir means that there is some
7 A. In essence.	7 connection that Dr. Katz believes exists between
8 Q. Okay. And, in essence, back in 1990s you and others	8 Muttonville and the Pilat 1-24 well; isn't that right?
9 at ANR told him to go pound sand, there was no	9 MR. STOCKMAN: Objection. Form.
10 communication and there was no migration and he was	10 Foundation.
11 wrong; right?	11 A. Communication would mean some sort of evidence by
12 MR. STOCKMAN: Objection. Argumentative.	12 pressure or otherwise that there was a connection or
13 A. I'm not going to say that certain terms like pound	13 influence if not a connection.
14 sand were used. We did not believe that there was	14 BY MR. KOCHANOWSKI:
15 evidence of any push of gas from Muttonville.	15 Q. Okay. And -- and Dr. Katz in 1980 is indicating to
16 BY MR. KOCHANOWSKI:	16 ANR's management that there is a high probability that
17 Q. Okay. So you told him he was wrong. We're going to	17 there's such a connection between Muttonville and this
18 get into some documents in a few minutes, but I want	18 Pilat 1-24 well, isn't he?
19 to ask -- you told him he was wrong; right?	19 MR. STOCKMAN: Objection. Form.
20 A. We did not agree with that hypothesis.	20 Foundation.
21 Q. Okay. Back in 1980 isn't it true that Dr. Katz had	21 A. That's Dr. Katz's assertion in this writing.
22 told ANR's management that the gas production in the	22 BY MR. KOCHANOWSKI:
23 Pilat 1-24 well, that was -- that eventually became	23 Q. Um-hmm. Well, I mean, eventually let's flash forward
24 something that Mr. Fodor's company had the rights to,	24 15 years or so when Mr. Fodor appeared and said -- and
25 should be studied to ascertain the degree of	25 said I believe that your gas is appearing in my well.
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1 communication with storage gas at Muttonville?	1 I mean, he was saying that he believes that the
2 MR. STOCKMAN: Objection. Foundation.	2 Muttonville storage facility was in communication with
3 BY MR. KOCHANOWSKI:	3 his Pilat 1-24 well; isn't that right?
4 Q. Isn't that what Item Number 3 says?	4 MR. STOCKMAN: Objection. Foundation.
5 A. That appears to be what Dr. Katz said in this	5 A. Well, in a previous question you said migrated. Now
6 document, Exhibit 3.	6 you're saying in communication.
7 Q. Okay. And, I mean, in this document, we don't have to	7 BY MR. KOCHANOWSKI:
8 go through all of it or any of it except for	8 Q. Well --
9 Muttonville, but he talks about gas migration and	9 A. So I would say yes, Mr. Fodor believed something like
10 monitoring a whole number of fields that -- that were	10 that.
11 operated by ANR at the time; right?	11 Q. Okay. All right. So Mr. Fodor believed something
12 MR. STOCKMAN: Objection. Form.	12 like that, and at least judging by this document here,
13 Foundation.	13 Dr. Katz believed in the same thing; isn't that right?
14 A. Well, there are six bullets here that describe issues	14 MR. STOCKMAN: Objection. Foundation.
15 in six separate fields.	15 A. At the time Mr. Fodor made his statement of belief,
16 BY MR. KOCHANOWSKI:	16 Dr. Katz was deceased.
17 Q. Right. And, now, if you could turn to Page 3 of	17 BY MR. KOCHANOWSKI:
18 that -- of that -- that letter, under the heading	18 Q. Well, let me ask it this way so that everyone
19 "Muttonville." Do you see that?	19 understands what I'm trying to get at. 15 years or so
20 A. This is on page TC004788?	20 before Mr. Fodor appeared and said I think your gas
21 Q. That's correct. And as my colleague points out,	21 from Muttonville is in my property underground,
22 there's a -- there's a part of that paragraph that's	22 Dr. Katz thought there was a high probability of the
23 been highlighted and the highlighting is not in the	23 same thing; isn't that right?
24 original. We highlighted that. Dr. Katz says, "There	24 MR. STOCKMAN: Objection. Foundation.
25 is a high probability that the gas produced by	25 A. That's what Dr. Katz said.

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1 BY MR. KOCHANOWSKI:  2 Q. Okay. All right. And Dr. -- Dr. Katz suggested that 3 current gas gravities are needed as well as pressure 4 changes to evaluate the situation. Do you see that? 5 A. Yes.  6 Q. And for the judge or the jury, what is a gas gravity? 7 And what can it tell us? 8 A. Do we have a judge and a jury here? 9 Q. Well, we will if we show them this videotape. 10 A. Can you restate your question?  11 MR. KOCHANOWSKI: Could you read it back? 12 COURT REPORTER: And for the judge or the 13 jury, what is a gas gravity? What can that tell us? 14 A. So the gravity of the gas is the density of the gas, 15 usually stated relative to air, which is assumed to be 16 a gravity of 1.0. 17 BY MR. KOCHANOWSKI:  18 Q. So gas gravity can tell us something about the content 19 of -- of a -- of a particular gas; right? 20 A. It's -- it's a gross parameter that just says the 21 density of the gas. That density can be caused by a 22 variety of mixtures of gas. 23 Q. Right. And we can analyze gas from say one sample 24 versus another sample and measure the amount of 25 various organic elements or compounds in it; right?	1 A. Thank you. 2 Q. On Muttonville. Well, first, do you know any of these 3 gentlemen, Haener, Clark, or Dowhan? 4 A. Yes. 5 Q. And who are they? 6 A. Mr. Clark was a consultant pretty much full time. He 7 was used to assist the transition to setting up ANR 8 Pipeline's storage group prior -- at the -- I guess at 9 the date of this document he would have been employed 10 by the pipeline company as an independent monitor of 11 what the Michigan Consolidated Gas Company group was 12 doing with respect to the pipeline company fields. So 13 kind of an internal engineering auditor.  14 Mr. Dowhan was actually the manager that I 15 first reported to in the reservoir group, so 16 Mr. Dowhan, at this time I don't know what his 17 position was, but he had some role in monitoring, 18 again, the activities that were being carried out on 19 behalf of the pipeline company fields.  20 Mr. Haener was a senior executive at some 21 level, perhaps at this time a director. He eventually 22 became a vice president within the pipeline company. 23 Q. Okay. 24 A. Over operations, so he would have had operational 25 responsibilities at a higher level than Mr. Dowhan or
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1 A. As well as inorganic compounds. 2 Q. Sure. And you can -- using various measurements, you 3 can tell whether gas say in this room is the same gas 4 that's, you know, down the hall or -- or a thousand 5 miles away and compare the -- the elements of the 6 gases within two different areas using various 7 chemical gas analysis; right? 8 A. Well, I would characterize it somewhat differently. 9 You can -- you can say two gases are similar, but that 10 doesn't mean they're the same.  11 MR. KOCHANOWSKI: I'm going to mark as 12 Exhibit 4 a document bearing production numbers TC4774 13 to 4780. 14 (Marked EXHIBIT 4 for identification) 15 BY MR. KOCHANOWSKI:  16 Q. And this appears to be correspondence -- 17 correspondence dated June 23, 1980, from someone named 18 W.R. Clark and someone named D.J. Dowhan to someone 19 named W.J. Haener "Re: Response to Dr. Katz's Letter 20 of January 2, 1980, Regarding Michigan Wisconsin Field 21 Operations." 22 Have you ever seen this letter before? 23 A. I don't recall. 24 Q. Okay. If you turn to Page 5 bearing production number 25 4778.	1 Mr. Clark. 2 Q. Okay. So -- thank you. On -- on the page I initially 3 directed you to at 4778 under the heading 4 "Muttonville," it appears that -- that Clark and 5 Dowhan are advising management that they agree with 6 the proposed investigation to determine the response 7 of the Pilat 1-24 well to storage operations. Do you 8 see that? 9 A. Yes. 10 Q. Okay. And they indicate that a preliminary review in 11 January with someone named Bill Damaschke of 12 Southeastern Michigan and Reef Petroleum indicated 13 that there was no obvious pressure communication. Do 14 you see that? 15 A. Yes. 16 Q. Okay. And Reef Petroleum at the time was the entity 17 that owned or operated that well; right? 18 A. It appears so. 19 Q. Okay. And so -- so does it appear to you that Clark 20 and Dowhan advised management that "A more thorough 21 study, currently underway by Reservoir Engineering, 22 should better evaluate the possibility. We recommend, 23 however, a continuing program of gas sampling and 24 analysis from this well preferably on at least a 25 3-month interval"? Do you see that?

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<p style="text-align: right;">Page 66</p> <p>1 MR. STOCKMAN: Objection. Foundation.</p> <p>2 A. I see that, yes.</p> <p>3 BY MR. KOCHANOWSKI:</p> <p>4 Q. Okay. Did you ever -- did you ever become aware of</p> <p>5 whatever happened to this study that they indicate is</p> <p>6 currently underway by reservoir engineering?</p> <p>7 A. I don't recall. That was before my time of employment</p> <p>8 there.</p> <p>9 Q. Okay. But they recommend a continuing program of gas</p> <p>10 sampling and analysis from this well preferably on at</p> <p>11 least a three-month interval; right?</p> <p>12 A. That's what they say.</p> <p>13 Q. Do you know whether that took place?</p> <p>14 A. In perpetuity, no.</p> <p>15 Q. Okay. Do you know whether it took place for some</p> <p>16 portion of a three -- of what they indicate is at</p> <p>17 least a three-month interval?</p> <p>18 A. I don't know.</p> <p>19 Q. Okay. Again, flash forward 15 years or so, and</p> <p>20 Mr. Fodor -- now, Mr. Fodor took over from -- from --</p> <p>21 on that well a few years -- a few years later than --</p> <p>22 than the date of this letter; right?</p> <p>23 MR. STOCKMAN: Objection. Foundation.</p> <p>24 A. Well, yes. Later than the date of this letter, yeah.</p> <p>25 BY MR. KOCHANOWSKI:</p>	<p style="text-align: right;">Page 68</p> <p>1 Q. All right. And are the samples that you -- you found,</p> <p>2 these -- like you said, these handful of gas samples,</p> <p>3 were they analyzed by the lab in Dearborn, inhouse, or</p> <p>4 someplace, you know -- some contractor outside?</p> <p>5 A. I have no recollection of who sampled those gases or</p> <p>6 did the analyses.</p> <p>7 Q. Okay. And do you have a recollection of -- of what</p> <p>8 gases were actually sampled? In other words, did</p> <p>9 someone come onto the -- come onto the Pilat 1-24 and</p> <p>10 obtain a gas sample from its reservoir?</p> <p>11 A. I have no recollection of how they were sampled.</p> <p>12 Q. Okay. But gas sampling was a -- was a technique that</p> <p>13 was, I think we discussed this before, that was used</p> <p>14 to try to analyze something like the migration of gas</p> <p>15 at that time, wasn't it?</p> <p>16 A. Gas sampling would be one tool in a tool kit among</p> <p>17 other tools that could be used to -- to solve</p> <p>18 problems.</p> <p>19 Q. Okay. But it wasn't an unusual tool in the tool kit,</p> <p>20 was it?</p> <p>21 A. It ought to be a tool that one looks at.</p> <p>22 Q. Okay.</p> <p>23 MR. KOCHANOWSKI: I'm going to mark as</p> <p>24 Exhibit 5 --</p> <p>25 MR. STOCKMAN: Do you want the labeled one</p>
<p style="text-align: right;">Page 67</p> <p>1 Q. Okay. All right. So when Mr. Fodor came to you on</p> <p>2 behalf of Michigan Geotech [sic], I'm just going to</p> <p>3 call him Mr. Fodor, and said I think that -- that --</p> <p>4 that the Muttonville gas is coming onto my property,</p> <p>5 did you search for any of the study apparently</p> <p>6 currently underway by reservoir engineering that would</p> <p>7 help explain or at least shed light on Mr. Fodor's</p> <p>8 concerns?</p> <p>9 A. My recollection in the mid '90s, we had a handful of</p> <p>10 gas samples and a handful of pressures from the Pilat,</p> <p>11 and a handful being, I don't know, maybe half a dozen,</p> <p>12 plus or minus.</p> <p>13 Q. Okay. When you say --</p> <p>14 A. This particular study I don't -- I mean, if there were</p> <p>15 a particular study stemming from this document, I</p> <p>16 don't recall that.</p> <p>17 Q. Okay. When you say handful of gas samples, are you</p> <p>18 talking about results of a gas sample or actual</p> <p>19 containers -- sealed containers of gas samples?</p> <p>20 A. The analyses of gas samples.</p> <p>21 Q. Okay. Did ANR at that time in the '80s and '90s have</p> <p>22 an inhouse ability to sample gas and analyze gas?</p> <p>23 A. Yes. We had a lab in Dearborn that had more</p> <p>24 sophisticated gas analysis capabilities as well as</p> <p>25 some limited ability at field locations.</p>	<p style="text-align: right;">Page 69</p> <p>1 for the witness?</p> <p>2 MR. KOCHANOWSKI: Yeah. Sorry. I knew I'd</p> <p>3 mess it up eventually. This is 5 too.</p> <p>4 (Marked EXHIBIT 5 for identification)</p> <p>5 BY MR. KOCHANOWSKI:</p> <p>6 Q. A document bearing production numbers TC2854 to 2860.</p> <p>7 It's a -- it's a document dated November 12th, 1980,</p> <p>8 from J.A. Ferrara to Mr. Weideman. Do you see that?</p> <p>9 A. Yes.</p> <p>10 Q. And there's some writing on this document in the form</p> <p>11 in which we received it. Can you identify -- do you</p> <p>12 know who -- who handwrote on this document?</p> <p>13 A. Yes.</p> <p>14 Q. Who is that?</p> <p>15 A. CL squared was Curtis Lee Lundy. He was -- he became</p> <p>16 I think at one point the manager for the Michigan</p> <p>17 Consolidated reservoir group, and I believe Curt Lundy</p> <p>18 was a geologist by training.</p> <p>19 Q. Okay. So at some point was he your boss?</p> <p>20 A. He was not my boss. Never was.</p> <p>21 Q. Okay. Well, he was boss of the reservoir group?</p> <p>22 A. Of the Michigan Consolidated Gas Company reservoir</p> <p>23 group.</p> <p>24 Q. Okay.</p> <p>25 A. So at the time of this -- remember 1980 the groups</p>

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1	were still combined. The divestiture of MichCon had	1	document.
2	not been completed.	2 Q.	Okay. According to -- to Mr. Ferrara here --
3 Q.	I see. So you were in the other -- in the other --	3 A.	I think it was Ms. Ferrara actually.
4 A.	As of the date of this document I wasn't employed yet.	4 Q.	Okay. Well, then I'm wrong again. But according to
5 Q.	Okay. But a few months later you were employed?	5	Ms. Ferrara here, she referred to something called a
6 A.	In September of 1981 I was employed reporting to	6	volumetric gas reserve estimate. Do you see that?
7	Mr. Dowhan.	7	That's going to be in the third sort of full paragraph
8 Q.	Okay. Now, who was Ferrara, J.A. Ferrara?	8	on the first page.
9 A.	The -- some reservoir engineer with the Michigan	9 A.	Oh, the first sentence of the third paragraph, yes.
10	Consolidated group.	10 Q.	Yeah. Yeah. So the -- the -- a gas reserve
11 Q.	Okay. Now, did you ever see this document --	11	estimate is produced for every producing well in,
12 A.	I may -- I may have.	12	well, Michigan and in other places; isn't that right?
13 Q.	Okay. What makes you say you may have?	13 A.	Usually.
14 A.	Well, again, there's this historical body of material,	14 Q.	Okay. And a volumetric gas reserve estimate expresses
15	some of which I can recall better than others. And so	15	how much gas there is in that particular reservoir
16	I don't specifically recall this one, so that's why I	16	for -- isn't that correct?
17	say I may have. This contains some analysis and so	17 A.	Well, it -- it depends what she, assuming it's a she,
18	there's -- there's a possibility I saw this one.	18	is referring to here by volumetric. Is that a
19 Q.	Well, you mean so -- let me see if I understand what	19	pressure production volumetric or a geologically
20	you just said. So there was a historical body of	20	derived volumetric? I don't know. So I'd be cautious
21	documents?	21	about saying what that estimate is.
22 A.	That would be -- that would be typical of any	22 Q.	Okay.
23	reservoir that we had files of historical information	23 A.	She also -- I mean, she uses the term "reserve," which
24	for each reservoir and important correspondence and so	24	is -- a reserve estimate is different than total gas
25	forth, so this -- this would have been in all	25	in place. So it's a little bit confusing as to what
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1	likelihood in the full body of Muttonville related	1	the author of this document is actually referring to.
2	documents.	2 Q.	Okay. This author talks about a original volumetric
3 Q.	Okay. And do you have a recollection of whether the	3	gas reserve of 80 million -- 80 MMCF; right?
4	Muttonville related documents had something like a	4 A.	That's what it says.
5	folder? This is -- this is before common use of	5 Q.	Is that 80 million cubic feet?
6	computers, 1980. That's how old we are. Was there a	6 A.	Yes.
7	paper file?	7 Q.	Okay. And a more recent reserve estimate showing 122
8 A.	Well, these would have been all paper files, yes.	8	million cubic feet, an increase of more than
9 Q.	And would there have been a folder or some sort of	9	50 percent; right?
10	thing you could say pull out a file drawer and say	10 A.	The second line reads 122 million cubic feet, yes.
11	let's take a look that they'd be in?	11 Q.	And as of September 1980 she says 280 million cubic
12 A.	There would be a Muttonville drawer with various	12	feet had been produced from that -- from that well and
13	folders.	13	it is still producing; right?
14 Q.	Okay. And within those folders would there be a	14 A.	Yes.
15	Pilat 1-24 or Reef Petroleum or migration -- possible	15 Q.	So that's apparently, according to Ms. Ferrara, the
16	migration folder or anything like that?	16	Pilat 1-24 as of 1980 has produced more gas than
17 A.	There might have been and it would be typical for a	17	originally in place and it may be deduced that
18	lot of storage reservoirs that offset wells might have	18	Muttonville's gas is migrating to the producing well.
19	their own folders of background information.	19	That's her -- that's her conclusion; right?
20 Q.	Okay. According to -- to -- well, do you recall	20	MR. STOCKMAN: Objection. Foundation.
21	whether you consulted this document in beginning to	21 A.	That's what this author deduces.
22	sort of formulate some sort of response to	22 BY MR. KOCHANOWSKI:	
23	Mr. Fodor's, you know, coming along, you know,	23 Q.	Okay. Because gas typically, I mean, you find it as
24	15 years later or so?	24	you find it; right? It was produced, it was -- it was
25 A.	I don't recall if we consulted this particular	25	made, it was -- God made it from old dinosaurs and

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<p style="text-align: right;">Page 74</p> <p>1       trees millions and millions of years ago and it is 2       what it is in every well; right?</p> <p>3            MR. STOCKMAN: Object to form.</p> <p>4 A. I'm not sure what you're asking.</p> <p>5 BY MR. KOCHANOWSKI:</p> <p>6 Q. Well --</p> <p>7 A. The native gas is native gas.</p> <p>8 Q. Right. And short of it coming over from someplace 9       else, you -- you have a -- you find it and you extract 10      it and when it's all gone, the well is empty. That's 11      in a typical -- in a typical situation; right?</p> <p>12            MR. STOCKMAN: Object to form. Foundation.</p> <p>13 A. That's correct. Remember these are estimates.</p> <p>14 BY MR. KOCHANOWSKI:</p> <p>15 Q. Okay. So whether Ms. Ferrara was right or wrong about 16      the -- about where the gas came from, will you agree 17      with me that at least as of 1980 MichCon or ANR had 18      noticed that something was going on in the Pilat 1-24 19      well?</p> <p>20            MR. STOCKMAN: Objection. Form. 21      Foundation.</p> <p>22 A. Well, I think you've showed me a number of exhibits 23      where there's conflicting statements of opinion. Some 24      of those opinions say that there was influence or 25      migration from Muttonville. Others say they can see</p>	<p style="text-align: right;">Page 76</p> <p>1 Q. Okay. Well, when Mr. Fodor approached you and your 2       colleagues back in the mid '90s, one of the things 3       that he told you was that his -- the Pilat 1-24 well 4       was producing much more gas than had been originally 5       believed to be in the well; isn't that right?</p> <p>6 A. As I recall.</p> <p>7 Q. Okay. And, in fact, that well was considered either 8       substantially or totally depleted by the time Reef 9       Petroleum ceased production there; wasn't that right?</p> <p>10            MR. STOCKMAN: Objection. Foundation.</p> <p>11 A. I would -- that would be someone else's term. That's 12      not a determination that I or anyone else in the 13      company would have made in terms of economic 14      depletion.</p> <p>15 BY MR. KOCHANOWSKI:</p> <p>16 Q. Okay. But we're -- we're in agreement, aren't we, 17       that -- that Mr. Fodor gave you information that the 18       well was producing more gas than had been believed to 19       be in the well going back 20, 30, or 40 years; isn't 20       that right?</p> <p>21 A. Subsequent information, remember 15 years hence to 22       these documents that you're showing me here, also 23       provided us with information that that accumulation 24       was larger in our opinion, and we also have to look at 25       the state of our -- of the reservoir that we actually</p>
<p style="text-align: right;">Page 75</p> <p>1       no influence. I mean, we're talking about a period in 2       time of all these exhibits that are, you know, within 3       a 12-month period.</p> <p>4 BY MR. KOCHANOWSKI:</p> <p>5 Q. Okay.</p> <p>6 A. The data doesn't change that fast.</p> <p>7 Q. I'm simply talking about -- about objective data here. 8       Isn't it true --</p> <p>9            MR. STOCKMAN: Move to strike.</p> <p>10            MR. KOCHANOWSKI: I'm talking about 11       objective data. Asking about objective data, sir. 12       Not the opinion.</p> <p>13 BY MR. KOCHANOWSKI:</p> <p>14 Q. Isn't it true that by November of 1980 ANR was in 15      possession of information that the Pilat 1-24 well was 16      producing more gas than had been originally estimated 17      and then reestimated for that well?</p> <p>18            MR. STOCKMAN: Objection. Form. 19 BY MR. KOCHANOWSKI:</p> <p>20 Q. I mean, that's what Paragraph 3 says, doesn't it?</p> <p>21 A. I read Paragraph 3 as a statement from one engineer 22      that -- comparing a bunch of numbers that I personally 23      have no ability to verify that -- what this individual 24      says is that more gas was produced than the two 25      volumetric estimates.</p>	<p style="text-align: right;">Page 77</p> <p>1       control.</p> <p>2 Q. Okay. Sir, I'm not asking you for whether your 3       opinions back then end up being right or wrong. I'm 4       asking you to comment whether or not Mr. Fodor gave 5       you information that was essentially the same 6       information as this engineer looked at 15 years 7       earlier, that there had been an increase in production 8       from estimates, from reserves of that well; isn't that 9       right?</p> <p>10            MR. STOCKMAN: Objection. Form. 11      Foundation.</p> <p>12 A. Yes. By the mid '90s more gas had been produced than 13       produced as quoted here in this November 1980 14       document.</p> <p>15 BY MR. KOCHANOWSKI:</p> <p>16 Q. Right. And in 1980 that increase in production, that 17       unexplained increase in production and the fact that 18       the well kept producing led at least this engineer to 19       agree with the notion that there was a high 20       probability that the gas was coming over from 21       Muttonville; isn't that correct?</p> <p>22            MR. STOCKMAN: Objection. Form. 23      Foundation.</p> <p>24 BY MR. KOCHANOWSKI:</p> <p>25 Q. Well, that's what the document says, isn't it?</p>

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<p style="text-align: right;">Page 78</p> <p>1 A. That's what the document says.</p> <p>2 Q. Okay.</p> <p>3 MR. STOCKMAN: Counsel, we've been going</p> <p>4 for two hours and you haven't even gotten up to a</p> <p>5 point in time when the witness worked at the company.</p> <p>6 MR. KOCHANOWSKI: Okay.</p> <p>7 MR. STOCKMAN: I mean, when are you going</p> <p>8 to ask him questions about things he actually did?</p> <p>9 MR. KOCHANOWSKI: Okay.</p> <p>10 BY MR. KOCHANOWSKI:</p> <p>11 Q. And -- and 15 years later Mr. Fodor came with the same</p> <p>12 objective evidence and the same objective conclusion</p> <p>13 in his mind, right, that -- that if there was more gas</p> <p>14 and continuing pressure buildup in his well and</p> <p>15 production from his well than had been expected had</p> <p>16 been reserved that the indication was that it came</p> <p>17 from Muttonville? Same conclusion as Ms. Ferrara;</p> <p>18 right?</p> <p>19 A. That would appear to be Mr. Fodor's supposition.</p> <p>20 Q. Okay. So what was your position by the mid 1990s?</p> <p>21 Who did you -- strike that. Who did you</p> <p>22 report to by the mid 1990s?</p> <p>23 A. Rick Gentges.</p> <p>24 Q. Okay. And what was Mr. Gentges' position?</p> <p>25 A. I think he was director.</p>	<p style="text-align: right;">Page 80</p> <p>1 that Mr. Gentges might ask me to do.</p> <p>2 Q. Okay. By that time had the company sort of</p> <p>3 standardized the -- the generation of something called</p> <p>4 the Storage Inventory Report?</p> <p>5 A. We did a storage inventory analysis and report every</p> <p>6 year.</p> <p>7 Q. Okay. And was that typically towards the end of the</p> <p>8 year?</p> <p>9 A. The report would come out towards the end of the</p> <p>10 calendar year.</p> <p>11 MR. KOCHANOWSKI: I'm going to mark as</p> <p>12 Exhibit 6 a document bearing production numbers TC4466</p> <p>13 to 4480.</p> <p>14 (Marked EXHIBIT 6 for identification)</p> <p>15 BY MR. KOCHANOWSKI:</p> <p>16 Q. And it appears to be titled a -- there's a cover</p> <p>17 letter and then another letter dated January of 1994</p> <p>18 from Jack Elenbaas to Rick Gentges relating to the</p> <p>19 December 6 and 7, 1993, Storage Inventory Report for</p> <p>20 the ANR Pipeline Company owned and leased storage</p> <p>21 fields. Do you see that?</p> <p>22 A. Yes.</p> <p>23 Q. Okay. And in the cover letter he talks about -- about</p> <p>24 conferences -- two days of conferences discussing the</p> <p>25 report and establishing non-recoverable gas volumes</p>
<p style="text-align: right;">Page 79</p> <p>1 Q. Of what?</p> <p>2 A. Of the Reservoir Services or whatever the group was</p> <p>3 named at the time.</p> <p>4 Q. Okay. What did Reservoir Services do?</p> <p>5 A. The -- the technical reservoir engineering, geology of</p> <p>6 the gas storage fields.</p> <p>7 Q. And how many people were in that group, roughly?</p> <p>8 A. Well, what year? I don't recall at the time.</p> <p>9 Q. Okay. Let's go --</p> <p>10 A. I mean, we had -- we had some people in the office.</p> <p>11 We also had a drilling and well services group out of</p> <p>12 Big Rapids, Michigan. We had a few individuals in</p> <p>13 other locations in Michigan that reported up through</p> <p>14 that structure. So I -- I don't recall how many</p> <p>15 people were in that structure.</p> <p>16 Q. Okay. And what were your responsibilities as of say</p> <p>17 1993, 1994 in that group?</p> <p>18 A. Yeah. I think in 1993, '94 I was probably prin -- my</p> <p>19 title was principal geologist, so principal level</p> <p>20 position.</p> <p>21 Q. Okay. So on a day-to-day basis what did you do?</p> <p>22 A. I had geologic responsibilities just in general as</p> <p>23 they came up as well as specific responsibilities for</p> <p>24 certain reservoirs, doing the reservoir engineering</p> <p>25 aspects of those, and then sometimes special studies</p>	<p style="text-align: right;">Page 81</p> <p>1 for each storage field. Do you see that?</p> <p>2 A. Yes.</p> <p>3 Q. And was that typical that there would be an actual</p> <p>4 conference, you know, within ANR where Mr. Elenbaas</p> <p>5 and others would discuss, you know, various things</p> <p>6 about the storage fields?</p> <p>7 A. Yes.</p> <p>8 Q. Okay. And did you participate back in the 1990s in</p> <p>9 those conferences?</p> <p>10 A. Yes.</p> <p>11 Q. All right. And were there points in time, sir, when</p> <p>12 you took a draft report and you wrote up some notes</p> <p>13 about it with suggestions?</p> <p>14 A. Yes.</p> <p>15 Q. Okay. So you were a substantive participant in those</p> <p>16 conferences; right?</p> <p>17 A. Yes. Certainly during this time period and then when</p> <p>18 I was a manager.</p> <p>19 Q. Okay. And how many people -- how many people</p> <p>20 typically participated in these conferences?</p> <p>21 A. Well, at this period of time we employed Walter Dowdle</p> <p>22 as the primary independent engineering auditor. We</p> <p>23 had continued to employ Mr. Elenbaas as an additional</p> <p>24 auditor and primarily for the historical context</p> <p>25 because Mr. Elenbaas could take us back to 1949 or '50</p>

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<p style="text-align: right;">Page 82</p> <p>1 with respect to things that had happened in some of      2 the older storage fields. There would be management      3 there, so when I was manager, that might involve me as      4 well as Mr. Gentges as the director, and then as we      5 discussed particular storage fields, there would be      6 the engineer who was actually doing the calculations      7 and the work. At the time where I was a principal      8 level and not a manager, I may have been asked to sit      9 in and just provide an overall review and -- and fill      10 in in case Mr. Gentges had to leave the room or      11 something like that.</p> <p>12 Q. Were these reports also -- in draft form also provided      13 to inhouse lawyers or outside lawyers for the company?</p> <p>14 A. I don't recall. Legal had a chance to view the      15 reports at some point in time as well as internal      16 audit. So there was -- but I -- you know, at this      17 period of time I don't recall exactly where the      18 intersection of -- I think today you might describe      19 legal and internal audit at this point in time as      20 being more of an inform rather than a consult. We --      21 so . . .</p> <p>22 Q. Okay. And what -- take a look at this report. Is      23 this the general form that Mr. Elenbaas followed, you      24 know, on an annual basis, that -- that he'd      25 participate, he'd review, and then he would offer his,</p>	<p style="text-align: right;">Page 84</p> <p>1 comment on that is that the non-effective gas volume      2 in Muttonville for '92, '93 is 1.4 billion cubic feet.      3 Do you see that?</p> <p>4 A. Yes.</p> <p>5 Q. Okay. And do you have any understanding of why in      6 1992 and 1993 the non-effective gas volume in      7 Muttonville is -- looks like 40 percent higher than      8 what Dr. Katz had calculated back in 1980? Remember      9 we looked at that? It said 1.0 billion cubic feet.      10 Do you have any understanding of why that gas volume      11 changed by 40 percent?</p> <p>12 A. Well, the non-effective gas volume is calculated every      13 year for the two shut-in points that are analyzed, and      14 so that number varies every year.</p> <p>15 Q. Okay.</p> <p>16 A. Up and down.</p> <p>17 Q. Okay. So you would expect the number to vary by how      18 much every year?</p> <p>19 A. That depends on the storage field in question. I      20 mean, the -- the variability can be significant based      21 on how much gas is cycled from the field and the      22 length of shut-in, the quality of the data, a host of      23 other parameters.</p> <p>24 Q. Okay.</p> <p>25 (Marked EXHIBIT 7 for identification)</p>
<p style="text-align: right;">Page 83</p> <p>1 as he says, response to the proposed Storage Inventory      2 Report?</p> <p>3 A. Yes. We would get a written report from Mr. Elenbaas      4 after the meeting, the in-person review meeting.</p> <p>5 Q. Okay. So this is dated January 7, 1994, and his cover      6 letter is the 10th, I think. But -- but the letter to      7 Gentges is dated January 7th, '94; right?</p> <p>8 A. Yes.</p> <p>9 Q. And did Mr. Gentges provide these to you or did      10 Mr. Elenbaas also provide these to you when he      11 generated them?</p> <p>12 A. First of all, just -- it's Mr. Gentges, so the      13 pronunciation.</p> <p>14 Q. Parson. Sure.</p> <p>15 A. And I would have seen these.</p> <p>16 Q. Okay.</p> <p>17 A. And, no, they would not have been -- unless it's      18 expressly cc'd to me, I would not have received them      19 from Mr. Elenbaas, but Mr. Gentges was in the habit of      20 making them available to staff.</p> <p>21 Q. Okay. And -- and in 1994, January 1994, Mr. --      22 Mr. Elenbaas is sort of reviewing -- let's go to      23 Muttonville. It's on Page 4. It's TC4471. He's      24 reviewing a number of fields, but I'm interested in      25 Muttonville field here. His only comment -- his</p>	<p style="text-align: right;">Page 85</p> <p>1 BY MR. KOCHANOWSKI:</p> <p>2 Q. I'm going to hand you Exhibit 7. I think I gave you      3 two copies by accident. Exhibit 7 is TC3430 to 3431.      4 It is a piece of Inter-Corporate Correspondence from      5 someone named C.A. Penabaker to Mr. -- I'm sorry. Is      6 it Gentges?</p> <p>7 A. Gentges.</p> <p>8 Q. Gentges. Do you know Mr. -- did you know      9 Mr. Penabaker?</p> <p>10 A. It's Ms. Penabaker. Yes, I knew her.</p> <p>11 Q. Okay. What was her role?</p> <p>12 A. She was a reservoir engineer for the company working      13 in the same group as I.</p> <p>14 Q. Okay. Do you know why Ms. Penabaker was examining      15 logs, completion records, and well test data from the      16 Department of Natural Resources for the Pilat 1-24      17 well back in November of 1994?</p> <p>18 A. We took all inventory analyses seriously, and if there      19 was a source of uncertainty, it was investigated, so      20 beyond that I can't say why she may have done it under      21 the direction of Mr. Gentges.</p> <p>22 Q. Okay. Well, on the second page -- on the second page      23 of this memo, your name is mentioned in the second to      24 last paragraph. Do you see that?</p> <p>25 A. I see that.</p>

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<p style="text-align: right;">Page 86</p> <p>1 Q. And it talks about something you and Ms. Penabaker 2 determining OGIP, O-G-I-P, estimates. Can you tell us 3 what OGIP stands for?</p> <p>4 A. Original gas in place.</p> <p>5 Q. Okay. And you estimated that the original gas in 6 place could have been between 271 and 854 million 7 cubic feet; correct?</p> <p>8 A. 859 is what it says.</p> <p>9 Q. I'm sorry if I --</p> <p>10 A. But that's what the statement says.</p> <p>11 Q. Okay. And then there's a statement that says, 12 "Estimates determined by Y. Hekim," H-E-K-I-M, "put 13 field content at 531 million cubic feet"; right?</p> <p>14 A. That's what it says.</p> <p>15 Q. Okay. Is Mr. or Ms. Hekim part of your department or 16 ANR?</p> <p>17 A. Mr. Hekim, it's a Mr., Mr. Hekim was part of the 18 department at the time.</p> <p>19 Q. Okay. So it looks like you, Ms. Penabaker, and 20 Mr. Hekim all were trying to figure out how much gas 21 was in place at the Pilat 1-24 well, correct, as of 22 November 1, 1994; correct?</p> <p>23 A. Using the data available as of that date, yes.</p> <p>24 Q. Why were you looking at Pilat 1-24 as of November 1, 25 1994?</p>	<p style="text-align: right;">Page 88</p> <p>1 producing oil -- I'm sorry, gas around all of your 2 fields? Was that part of your general -- general 3 practice?</p> <p>4 A. We did that for other fields, yes. I mean, I can't 5 recall all the instances, but there were certainly 6 other fields that we -- the only available records 7 were sometimes from state sources.</p> <p>8 Q. Okay. But -- but you were doing it for fields that 9 had migration issues, weren't you?</p> <p>10 A. No. They weren't all that.</p> <p>11 Q. There were some --</p> <p>12 A. Remember, my duties involved geological mapping, and 13 that involves the estimation of closure of a reservoir 14 and so many other things, so our general interest was 15 staying abreast of the things that were going on in 16 and around our reservoirs.</p> <p>17 Q. Okay. One of the things that -- that was examined 18 here was gas analysis. Do you see that?</p> <p>19 A. You're saying on Page 1, --</p> <p>20 Q. Yes.</p> <p>21 A. -- TC3430?</p> <p>22 Q. Yeah.</p> <p>23 A. I see that.</p> <p>24 Q. Okay. Now, that's the gas analysis. It says the well 25 had two gas analysis run both in May 1997. Is that</p>
<p style="text-align: right;">Page 87</p> <p>1 A. Well, the Pilat well was always the subject of 2 discussion and inventory reviews, and I don't know why 3 at this particular time, but that was us investigating 4 sources of uncertainty, and the uncertainty over 5 non-effective gas at Muttonville at this time was 6 requiring us to take a look at all potential sources 7 of uncertainty.</p> <p>8 Q. Okay. But by November 1994 Mr. Fodor was -- was the 9 operator at that well; correct?</p> <p>10 A. If you say so, yeah.</p> <p>11 Q. Okay. Well, my records, our records show that 12 Mr. Fodor contacted you a month later in December 1994 13 with his complaint, with his questions about -- about 14 migration. So -- so if we keep that in mind, my 15 question to you, sir, is why in November were three 16 people at your company looking at logs, completion 17 records, and well test data that you got from the DNR 18 about this well?</p> <p>19 A. I can't answer the timing. I don't recall.</p> <p>20 Q. Okay.</p> <p>21 A. I mean, I don't recall why the timing of the study was 22 that particular timing.</p> <p>23 Q. Well, I mean, was it routine for your company to at 24 the time to go to the -- to the state and get all 25 these detailed records for every plot of land that was</p>	<p style="text-align: right;">Page 89</p> <p>1 something that the state would keep or is that your 2 own records that this is referring to?</p> <p>3 A. I don't recall.</p> <p>4 Q. Okay. Is it -- to the best of your knowledge, does 5 the -- does the Department of Natural Resources keep 6 gas analysis of -- such as that that's indicated in 7 this memo?</p> <p>8 A. I think so. If I go on the state website today, I can 9 find gas samples.</p> <p>10 Q. Okay. So this showed -- this at least showed you -- 11 I'm sorry. Withdraw the question.</p> <p>12 This would show you that -- the content of 13 the gas at the well as of May 1997; right?</p> <p>14 A. That's what it -- 1977.</p> <p>15 Q. I'm sorry. 1977. Okay. So that's -- and that's 16 before -- before ANR started the storage -- its 17 storage operations or right around the time that ANR 18 started storage operations at Muttonville; correct?</p> <p>19 MR. STOCKMAN: Objection. Foundation.</p> <p>20 A. Could you repeat the question?</p> <p>21 BY MR. KOCHANOWSKI:</p> <p>22 Q. Sure. Sure. May 1997 -- the May 1997 gas analysis at 23 Pilat 1-24 --</p> <p>24 MR. STOCKMAN: 1977.</p> <p>25 BY MR. KOCHANOWSKI:</p>

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<p style="text-align: right;">Page 90</p> <p>1 Q. I'm sorry. Strike that. The gas analysis as of 2 May 1977 was about the time, give or take a year or 3 so, that Muttonville started its storage operation? 4 MR. STOCKMAN: Object to form. 5 BY MR. KOCHANOWSKI: 6 Q. Isn't that correct? 7 A. That's about right. I think Muttonville started 8 perhaps a year or a year and a half earlier than that. 9 Q. Okay. And according to Dr. Katz, it would take about 10 a year or so for gas to migrate if, in fact, there was 11 gas communication between Muttonville and the Pilat 12 well; isn't that right? 13 MR. STOCKMAN: Objection. Foundation. 14 A. Based on what, I don't know. 15 BY MR. KOCHANOWSKI: 16 Q. You don't know. Okay. The -- the -- is it fair to 17 say that the gas -- the specific gravity of 18 .60 percent indicated on this gas analysis as of 19 May 1977 would give you kind of a true picture of what 20 the specific gravity was sort of uncontaminated by -- 21 strike that. Strike that question. Let me try it 22 this way. 23 Would the specific gravity as of May 1977 24 indicated in this report give you an accurate picture 25 of the -- of the gas in the Pilat 1-24 well?</p>	<p style="text-align: right;">Page 92</p> <p>1 BY MR. KOCHANOWSKI: 2 Q. I've handed you marked as Plaintiff's Exhibit 8 a 3 document called TC -- I'm sorry, bearing production 4 numbers TC3447 to 3448. 5 A. Yes. 6 Q. Is this a two-page report or memo that -- that you 7 prepared? 8 A. Yes. 9 Q. On or about January 12th, 1995? 10 A. Yes. 11 Q. Okay. And why did you prepare this report? 12 A. I don't recall specifically other than I was probably 13 requested to do it and it -- I'm also assuming it 14 relates to that prior memo that you showed from 15 Ms. Penabaker. 16 Q. Well, do you have any recollection of Mr. Gentges 17 telling you to prepare this report because Mr. Fodor 18 had raised concerns about the -- about encroachment? 19 A. I don't recall that that was the primary motivation. 20 I just don't recall what the order, quote unquote, 21 would be to have done the study. 22 Q. Okay. Okay. Well, can you think of any other reason 23 why in January of 1995 your group, your Reservoir 24 Services group, would be looking at the possibility of 25 a connection between the Muttonville Reef -- the</p>
<p style="text-align: right;">Page 91</p> <p>1 MR. STOCKMAN: Object to form. 2 A. Well, I don't know. Presumably it was a native gas 3 sample, but there's some things here that don't make 4 sense to me. But I'm assuming that Ms. Penabaker 5 wrote up the analysis of the gas fairly. 6 MR. STOCKMAN: What are your thoughts about 7 lunch? 8 MR. KOCHANOWSKI: That I like it. 9 MR. STOCKMAN: I mean, I am agnostic as to 10 when we break, but what is the -- what does the 11 witness think? 12 MR. KOCHANOWSKI: What does the witness 13 think? 14 THE WITNESS: I'm fine with breaking for 15 lunch whenever the rest of the group. I have no need 16 to break right now for lunch, but if you'd like to set 17 a time and we just kind of have counsel stick to that. 18 MR. KOCHANOWSKI: Sure. How about like 19 in -- in a half hour? 20 MR. STOCKMAN: That works for me. 21 MR. KOCHANOWSKI: Fine. 22 MR. STOCKMAN: Is it for you? 23 THE WITNESS: Yes. 24 MR. KOCHANOWSKI: Great. 25 (Marked EXHIBIT 8 for identification)</p>	<p style="text-align: right;">Page 93</p> <p>1 Muttonville storage facility and the Pilat 1-24? 2 A. Well, you're asking me to speculate. The -- again, we 3 were in the habit of doing annual inventory 4 assessments. The presence of the Pilat, as you've 5 pointed out, was known since the late 1970s. It was 6 something that was picked up and looked at more or 7 less formally at various times. This appears to be a 8 time where we looked at it more formally. Again, I 9 can't recall the specific motivation to do it at this 10 particular time. 11 Q. All right. 12 A. The -- the non-effective gas volumes at Muttonville 13 were relatively high at the time, but other than that, 14 I'm speculating as to the motivation here. 15 Q. Okay. The -- is it -- would you call this a report or 16 would you call this a summary or what would you -- 17 what would you call this document? 18 A. I'd call it an interoffice memo of my investigations 19 within the confines of whatever I describe here. It 20 seems like this would have been attached to some 21 actual exhibits. But, yeah. I mean, it was an 22 interoffice memo to my direct supervisor, who was 23 Mr. Gentges at the time. 24 Q. Okay. Now, the -- the last paragraph of the first 25 page kind of summarizes some observations that you</p>

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<p style="text-align: right;">Page 94</p> <p>1 made in the -- in the preceding seven paragraphs; 2 right?</p> <p>3 A. Okay. I'm reading it.</p> <p>4 Q. Sure.</p> <p>5 A. Okay.</p> <p>6 Q. Now, you said, "The significance of these 7 observations," that -- that -- I think -- that refers 8 to Paragraphs 1 through 7, "is that there is not 9 conclusive structural evidence to close the 10 Muttonville reef completely in the direction of the 11 Pilat well and, in fact, the data weakly suggest the 12 preconditions necessary for rudimentary mound 13 development (a ridge)."</p> <p>14 Those are your words?</p> <p>15 A. Those are my words.</p> <p>16 Q. Okay. So here you, if I may paraphrase, see if you'll 17 agree with this, you said that according to your 18 observations there is a possibility that there are 19 some geological structures that would suggest a 20 connection between the Pilat and the Muttonville Reef; 21 isn't that correct?</p> <p>22 MR. STOCKMAN: Objection. Foundation.</p> <p>23 A. That is part of my conclusion. It's not the entirety 24 of my conclusion.</p> <p>25 BY MR. KOCHANOWSKI:</p>	<p style="text-align: right;">Page 96</p> <p>1 Q. Right. So here, for instance, you don't look at any 2 kind of gas analysis; right?</p> <p>3 A. No.</p> <p>4 Q. Okay. But gas analysis is another piece of that tool 5 kit, as it were; right?</p> <p>6 A. It's one tool in the tool kit.</p> <p>7 Q. Sure. And a pressure analysis of the pressures 8 between -- between the Pilat and Muttonville and over 9 time and -- or so forth, that would be another type of 10 tool kit analysis that you could use to examine 11 whether there's a communication between these two -- 12 these two reservoirs; right?</p> <p>13 A. That is another tool.</p> <p>14 Q. Okay. And -- but you didn't use that either in this 15 report?</p> <p>16 A. This report looks at the geologic framework.</p> <p>17 Q. Do you recall ever revising your opinion in any kind 18 of memo that says, you know, to your superiors, you 19 know, thinking about it some more, I think that there 20 is no chance that there is underground communication 21 between these two reservoirs?</p> <p>22 MR. STOCKMAN: Objection. Foundation.</p> <p>23 A. Well, did you use the term "ever" in your question?</p> <p>24 BY MR. KOCHANOWSKI:</p> <p>25 Q. Yeah.</p>
<p style="text-align: right;">Page 95</p> <p>1 Q. Okay. And -- and that's what you were asked to do was 2 to look at the geological conditions?</p> <p>3 A. Yes.</p> <p>4 Q. All right. So you did not close off entirely, based 5 on your geological observations and analysis and your 6 training and your education, you didn't close off 7 entirely the notion that there was a complete 8 containment of the Muttonville storage field vis-à-vis 9 the Pilat 1-24 well; right?</p> <p>10 MR. STOCKMAN: Objection. Foundation.</p> <p>11 Form.</p> <p>12 A. What I'm stating here is there was -- there was enough 13 uncertainty in what I saw. So as a geologist, I was 14 hoping to train myself through my career to never 15 close off, you know, and to say a hundred percent 16 we're in the subsurface. It's hard to be 100 percent 17 certain.</p> <p>18 BY MR. KOCHANOWSKI:</p> <p>19 Q. And just to be -- just to be clear, back in those days 20 the geological review was just one of the reviews you 21 would -- you would run to see if the Pilat was in 22 communication with the Muttonville storage facility; 23 right?</p> <p>24 A. The geologic framework informs the reservoir 25 engineering data and vice versa.</p>	<p style="text-align: right;">Page 97</p> <p>1 A. Well, I don't recall everything over many years I 2 would have said and done. I mean, and my mind goes to 3 the last number of years that I was director and the 4 studies that we did, so, I mean, I would say in 5 general my mind -- my mind and leadership of the group 6 when I had managerial and directorial responsibility 7 was to continue to investigate uncertainties.</p> <p>8 Q. Okay.</p> <p>9 (Marked EXHIBIT 9 for identification)</p> <p>10 BY MR. KOCHANOWSKI:</p> <p>11 Q. I've marked as Exhibit 9 a one-page memo bearing 12 production number 5067, TC5067, from your boss to 13 Mr. Kobasa with copies to you and Ms. Penabaker. Do I 14 have that right?</p> <p>15 A. Yes.</p> <p>16 Q. Okay. And that's dated February 22nd, 1995.</p> <p>17 A. Yes.</p> <p>18 Q. Do you recall getting this -- reviewing this 19 document -- getting or reviewing this document either 20 25 years ago or -- or the other day, Mr. Nowaczewski?</p> <p>21 A. Yeah. I would recall it when I saw it.</p> <p>22 Q. Okay. Who was Mr. Kobasa?</p> <p>23 A. As I recall, at the time Mr. Kobasa was a vice 24 president to whom Mr. Gentges reported, so this would 25 be a inter-corporate memo to his superior.</p>

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1 Q. All right. Now, let's go -- let's go through this 2 memo a little bit. Maybe it'll refresh everyone's 3 recollection as to some things that happened. It 4 says, "On February 21," and it's 1995, "we met with 5 Mr. Tom Fodor," it's actually Tim Fodor, "President, 6 Michigan Geosearch Incorporated, and John Odinga at 7 MGI's office in St. Clair to discuss the production 8 history of the Pilat 1-24 well."	1 A. Yes. I think that's a fair summary. 2 Q. Okay. And for whatever reason, he felt that it was 3 interfering with his operation at the well; right? 4 A. I can't answer to his feeling of interference. 5 Q. Well, he didn't say thank you for the gas, did he? 6 A. He could have. 7 Q. Well -- he could have. He could have danced on a 8 tree, too, but -- but he didn't. He asked -- he asked 9 what MG -- I'm sorry, what ANR was going to do about 10 this situation, didn't he? 11 A. Well, I don't recall his specific words. 12 Q. Okay. How about his -- how about -- how about the 13 general tenor of this discussion? I mean, was this an 14 informational meeting? 15 A. My recollection is that Mr. Fodor's desire was that 16 ANR might purchase his well and its interests. 17 Q. Okay. And do you recall whether Mr. Fodor threatened 18 litigation at that time? 19 A. No. I don't recall that. 20 Q. Okay. In fact, do you recall Mr. Fodor ever 21 threatening litigation? 22 A. I don't personally have any recollection of threats. 23 Q. Okay. So Mr. Fodor told you, according to the first 24 paragraph here, that he had produced some millions of 25 cubic feet of gas or the well had produced some 560
1 about the conditions that he was observing at the 2 Pilat well and wanted to talk about those concerns. 3 Q. Okay. Well, what were the concerns as you recall 4 them? 5 A. My recollection is that Mr. Fodor felt that the 6 Muttonville gas storage reservoir might be influencing 7 and/or leaking into the Pilat accumulation. 8 Q. So using the words we kind of used a little earlier 9 today, he was suggesting that gas from Muttonville was 10 migrating away from Muttonville and into the 11 Pilat 1-24; right? 12 A. Well, I want to be cautious with migrating. It was 13 moved -- migrating in terms of moved. Migrating in 14 the sense of when we talked about it at first with the 15 Dr. Katz study as in migrating no longer in pressure 16 communication. I think what Mr. Fodor, and I hesitate 17 to put meaning or thoughts behind Mr. Fodor's actions, 18 but what -- the sense I got was that Mr. Fodor 19 believed that storage gas had come into his production 20 unit at the Pilat well. 21 Q. Okay. He was suggesting that -- that there was some 22 underground communication, some -- some way in which 23 that gas that was -- the storage facility was a little 24 ways north, northwest, I guess, was coming into his 25 well; is that right?	1 million cubic feet of gas before its acquisition and 2 has since produced additional 160 million cubic feet 3 of gas and he told you about the pressures in the 4 bottomhole; right? 5 A. Yes. That's what it says here. 6 Q. Okay. And all of those objective numbers would 7 indicate that there was some -- something going on in 8 that well; isn't that right? 9 A. Something going on. 10 Q. Yes. Something unusual. Let me put it this way. 11 Both those sets of numbers that he gave you at that 12 point in time were the same sort of numbers and data 13 that your company's engineers had looked at 15 years 14 earlier; isn't that right? 15 MR. STOCKMAN: Objection. Foundation. 16 A. It's the -- so production data, pressure data, gas 17 analyses, those are typical pieces of data that are 18 used in estimates of producible gas, gas in place and 19 other things. 20 BY MR. KOCHANOWSKI: 21 Q. Sure. 22 A. Again, as tools in a tool kit. 23 Q. Sure. But -- but he wasn't talking about gas -- any 24 kind of gas samples here. He was simply talking, 25 according to this memo, about the fact that his well

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<p>1     was producing substantially more gas than had been      2     anticipated when he purchased the well.) Let me try it      3     that way. Isn't that the gist of what Mr. Fodor was      4     telling you at this meeting?</p> <p>5 A. I think I would characterize it differently. When you      6     say more than anticipated, this memo specifically just      7     says they produced so much prior to MGI's acquiring      8     it, it has since produced an additional 160 million.      9     The next two sentences quote pressures.</p> <p>10 Q. Well, he says they shut the well -- let's talk about      11    the pressures. They shut the well at the end of May      12    '94 and pressure has risen at that time from 400 psi      13    to 515 psi; right? Those are kind of objective      14    numbers he gave you at that meeting; right?</p> <p>15 A. Yes.</p> <p>16 Q. And -- and based on your geological knowledge back in      17    1995 and your knowledge of how reservoirs and wells      18    work, there should be no rise in pressure after a      19    shut-in absent some -- some gas continuing to come      20    into the well; isn't that right?</p> <p>21 A. No. That's a false statement.</p> <p>22 Q. It's a false statement.</p> <p>23 A. The way -- the way you said it, that's false.</p> <p>24 Q. Okay.</p> <p>25 A. After a shut-in, you expect a pressure to rise.</p>	<p>1     MR. STOCKMAN: Objection. Incomplete      2     hypothetical.</p> <p>3 A. It would cause a need to look at additional      4     information to confirm that, you know, something      5     wasn't missed in the prior analysis.</p> <p>6 BY MR. KOCHANOWSKI:</p> <p>7 Q. But didn't Mr. Fodor subsequently tell you -- I'm      8     sorry, provide you with information that the      9     bottomhole pressure rose substantially above 565?</p> <p>10 A. I -- at some point in time my recollection is that the      11    pressure was -- was greater than 565.</p> <p>12 Q. Okay. So based on Mr. Gentges' own words here, the      13    assumption that there was no connection to Muttonville      14    was wrong; isn't that right?</p> <p>15 MR. STOCKMAN: Objection. Foundation.</p> <p>16 A. Again, he predicates that sentence saying "Based upon      17    studies we've conducted thus far," so I think as we      18    continue to get new information over the course of      19    time we have to look at the holistic story of what do      20    we see going on in our own reservoir that we      21    control --</p> <p>22 BY MR. KOCHANOWSKI:</p> <p>23 Q. Okay. Well --</p> <p>24 A. -- and we don't always control the information from      25    others, but we can control the information that we</p>
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<p>1 Q. By how much?</p> <p>2 A. That depends on the characteristic of the reservoir      3     and the volume of gas that's out there.</p> <p>4 Q. Okay. According to this memo -- was this written by      5     Mr. Gentges or -- or was it written by you and he      6     signed it?</p> <p>7 A. No. He would be the author of his own memos as best I      8     can recall.</p> <p>9 Q. Okay. He says in Paragraph 3, "Based upon studies      10    we've conducted thus far, we would not expect pressure      11    on the Pilat well to rise above approximately 565 psi      12    bottomhole, assuming no connection to Muttonville."      13     Do you see those words?</p> <p>14 A. Yes.</p> <p>15 Q. Okay. Is it -- is it fair to understand that back in      16    February of 1995 Mr. Gentges -- Mr. Gentges said that      17    the maximum pressure that the well would -- would      18    stabilize to if there was no connection would be      19    565 psi?</p> <p>20 A. Predicated with based upon studies we've conducted      21    thus far.</p> <p>22 Q. Okay. So if the bottomhole pressure rose above 565      23    after February 20 -- February 22nd, 1995, and      24    Mr. Fodor continued the shut-in, would you then assume      25    that there is a connection to Muttonville?</p>	<p>1     have in the Muttonville reservoir.</p> <p>2 Q. Well, one of the holistic information -- piece of      3     information that you had by this time was your memo      4     of, what was it, three or four weeks earlier that --      5     that concluded that there was some probability -- I'm      6     sorry, some possibility of a connection to      7     Muttonville; correct?</p> <p>8 MR. STOCKMAN: Objection. Foundation.</p> <p>9 Mischaracterizes the document.</p> <p>10 BY MR. KOCHANOWSKI:</p> <p>11 Q. You may answer.</p> <p>12 A. My conclusions in the January 12, 1995, memo stand for      13    themselves.</p> <p>14 Q. Okay. Well, your testimony about it also stands for      15    itself; correct? Or do you wish to change it.</p> <p>16 A. No. My -- my final paragraph in that document is my      17    conclusion.</p> <p>18 MR. KOCHANOWSKI: All right. Is now a good      19    time for lunch? It's 1:00.</p> <p>20 MR. STOCKMAN: Very good.</p> <p>21 THE WITNESS: Yeah. I could probably      22    use -- my voice is breaking up a little bit.</p> <p>23 MR. KOCHANOWSKI: Sure. Yeah. I could      24    hear it.</p> <p>25 VIDEO TECHNICIAN: We are going off the</p>